

THE
WORLD IN ITS WORKSHOPS
A CRITICAL EXAMINATION

Of the Fabrics, Machinery, and Works of Art

CONTAINED IN

THE GREAT EXHIBITION.

BY JAMES WARD.

SECOND DIVISION.

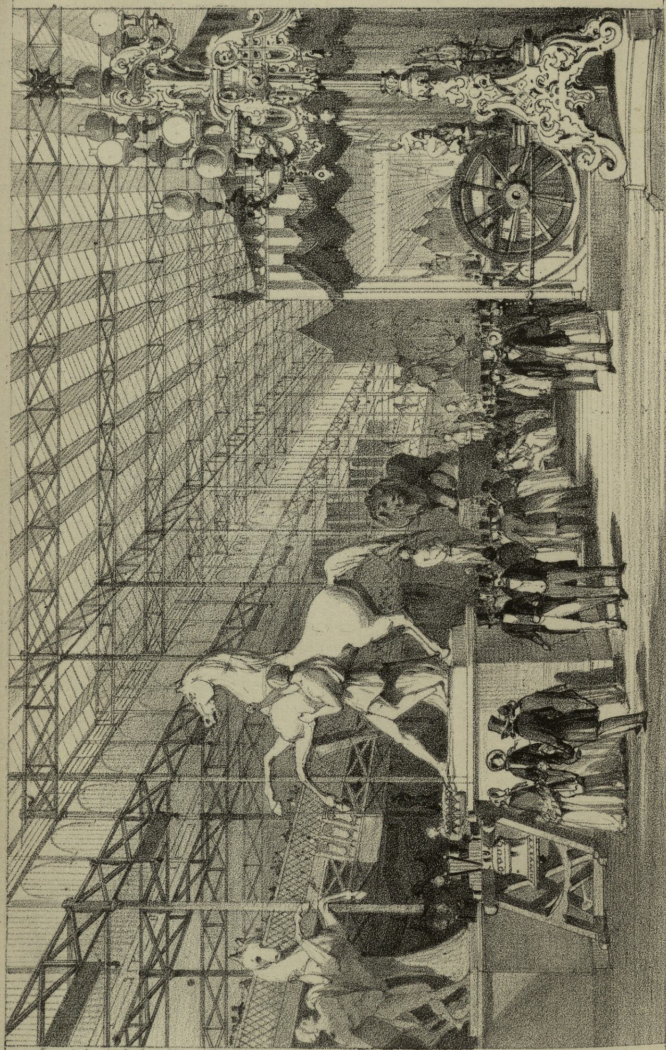


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A PRACTICAL EXAMINATION OF BRITISH AND FOREIGN
PROCESSES OF MANUFACTURE,

WITH

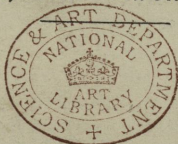
A CRITICAL COMPARISON OF THE FABRICS, MACHINERY,
AND WORKS OF ART

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SCULPTURE, CABINET-WORK, GLASS, &C.



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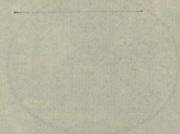
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CHAPTER XIV.—SCULPTURE, &c.

ONE of the most interesting features of the Exhibition is assuredly the sculpture. At whatever point you chance to enter that singular structure, the attention is instantly drawn to some object of art which forms a centre of attraction for the eye to rest upon, and thence it radiates to other objects which more immediately surround it. And the eye returns with pleasure to these objects of art,—after sating itself upon others of perhaps not inferior interest and beauty,—as to a familiar and recognized guide; by this means it becomes refreshed, and gathers strength for a new incursion into the surrounding region of marvels, where it wanders with greater gusto than though it were left to gaze upon the monotony of naked naves and unbroken avenues.

The variety of the sculpture is alike instructive and interesting; in character, in beauty, and originality of conception, it is singularly so; but in felicity of illustration it is both interesting and instructive in the highest degree. The history of art furnishes no such page as the one we are feebly attempting to illustrate. The variety of the collection alone suggests a theme for speculative enquiry which would lead the mind into an almost interminable labyrinth; for the collection itself is “as a sign” to show whither tends the world, and what is the nature of its movement. The question naturally arises, What is the predominant character of the collected variety? Taken numerically, no bad test, it evidently leans to the illustration of the humane and generous sentiments of one’s nature; and this we deem one of the happiest features of its character. The hateful and evil passions of man’s nature are evidently on the decline, as subjects for the chisel of the sculptor; and though a lingering tradition here, or a latent prejudice there, may occasionally renew the image of a Richard Cœur-de-Lion or a Godfrey of Bouillon, the incarnations of an evil age, it is a cheering reflection that such subjects form the exception, and not the rule for genius to illustrate. This fact conveys a beautiful moral. “Show me a man’s companions,” says the Italian proverb, “and I’ll

tell you what he is;" and Voltaire cynically puts an hypothesis—"What must that people be whose gods are monkies?" By analogy, what are the prevailing characteristics of a community who are eternally commemorating their warriors and statesmen, and seldom think of their philosophers and men of science? At length, however, the heaven-gifted genius of our sculptors and painters has received a more appropriate direction, and we can almost exclaim with the great dramatist, that our

. "Spirits are not finely touch'd,
But to fine issues."

Ere we attempt to analyse the collection in question, let us just glance at the state of sculpture, both here and elsewhere; we shall then perhaps, be enabled to form a more correct notion of its precise character.

The mind, from the earliest known period, has uniformly manifested a desire to express immaterial thoughts by material forms. At all times, and under all circumstances, one idea seems to have haunted man—to establish a connection between the workings of his own mind and the outward objects amid which he dwells—to identify his moral being with the natural influences which surround him—and, finally, to impress the records of his affections upon some material less perishable than his own heart. This, we apprehend, was the origin of sculpture, which, more or less, is found under every phase of civilized life, and even in certain modifications of savage life. Amid the ruins of past magnificence, and the first rude beginnings of social structure—in the old world and in the new—wherever an altar has been raised or a worship embodied—are alike found the traces of this old and imitative art. The South-Sea islander, with his rude conception of a God, is perhaps the alpha of the fine art of sculpture; while Baily, with his divinely-expressive Eve, may be denominated the omega. The uncouth representative of Deity, by the child of the Pacific Ocean, is certainly a step in advance of the idea of the Indian—

. "Whose uatutor'd mind
Sees God in clouds, or hears him in the wind."

Just as much so, indeed, as Paxton's design of the Crystal Palace on blotting-paper, rough and rickety as it appears in that form, is, when compared to the idea in Paxton's head. There is, however, a wide gap between the first material embodiment of a thought and its ultimate and perfect illustration; and the hand that directs the rude implement which cuts "a grinning god of wood" must necessarily be directed by a different head to that which animates the cold marble, and clothes it with the divinest attributes of life. A slight sketch of



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sculpture will more fully explain our meaning; and it is the more necessary, seeing that the art appears to have made little progress from the early period of the Greeks to the present time, and that all the European nations, judging by their contributions to the Exhibition, are about upon a par as regards their excellence therein.

The imitative arts are called poetry, painting, and sculpture, though in fact the painter and sculptor are, and must be poets, according to the general meaning of the term, which signifies a creator or inventor, otherwise the one is only a dauber of colours, and the other is nothing more than a stone-cutter. Nature is the great archetype which they one and all follow—the painter through the medium of colours, the sculptor by his plastic art, and the poet by his imagination. They all take a peep into the great mirror of nature; and the genius which they respectively display is determined by the accuracy with which they depict her reflections. However, let us confine ourselves to the sculptor. He has neither the words of the poet nor the colours of the painter as a medium for his thoughts. He relies solely upon form. Like the painter, he can only have one moment of time, as it were, to delineate his conceptions; he is obliged to seize hold of a single incident, therefore is precluded from a succession of ideas like the poet; but brief as that instant is, with what abundance of ideas may it be fraught in the hands of a genius like Raphael or Canova! The artist, whether painter or sculptor, naturally endeavours to place his object in the most telling position, so that the conception of his mind may be worked out to the most subordinate point. In the form, the attitude, and the expression of the figure, will be exhibited the power and genius of the artist, and, if it be ably handled, it will leave more to the imagination than to the observation—it will, in fine, be rather suggestive than descriptive. For instance, Paul Preaching at Athens on Mar's Hill is a single incident, which Raphael has powerfully illustrated in one of his cartoons, and the uplifted hands and earnest expression of the great apostle imply that he was in the very heat of his discourse—that he had attained the climax of his exhortation to the “idle Athenians;” and the Venus of Canova as expressively portrays the momentary action which mythology attributes to the divine goddess. In both these instances there is something left for the imagination to supply—the true secret of effective art. And this brings us at once to the well-head of the art.

Greek art appears to have exercised an influence over the sculpture of every part of Europe, from the earliest period of its existence

even down to the present time. Some fanciful critics tell us that art was not indigenous to the soil of Greece; nevertheless it flourished there with singular luxuriance, and put on an individuality of excellence of which there was no preceding example. If Egypt was the cradle of art, Greece became its home, and the scene of its consecration; it was in her congenial soil that sculpture adopted shapes and took features which amount almost to a new creation.

The art grew with the growth of her high and spiritual mythology, when the land was full of lofty recollections, and haunted all over with the poetry of beautiful thought—when stream and cavern, mount and plain, sea and shore, were peopled with divinity, in some of its abstract and ideal shapes; it is here that we trace the perfection of its intellectual character, when it took the form in which it finally and for ever enchanted the world. As we descend the stream of time we see the genius of Greece in almost every sculptured phase, as though she had perfected the art; and even to the present day,—so powerful is the spell of her genius,—the materials of our sculptors are drawn from her mythology, as though it were a belief or a sacred symbol of faith.

The mind of Greece, in short, was a miracle; it seems to have attained perfection *per saltum*, like its own fabled Minerva, who is said to have sprung armed *cap-à-pie* from the brain of Jove. Its laws, its climate, its institutions—all were favourable to the development of the mental elements; and poetry, painting, sculpture, and philosophy, appears like a sudden creation of brilliant stars upon the horizon of thought, whose undying light is still the prevailing beauty of the intellectual world. Phidias, for example, brought to the art of sculpture,—already advanced to an excellence far surpassing anything which the ancients had left,—a genius of the highest order, a genius which had been steeped, if the expression may be allowed, in the inspiration of the poets, and disciplined by the wisdom of the philosophers. By communicating his divine spirit to the human form he raised sculpture to the first place in art—aye, on a throne than which there is none higher—and imbued it with the power of exciting the imagination and of touching the heart. Quintillian remarks of his two great productions—the Minerva and the Olympian Jupiter—"that they seemed to have added something to religion, the majesty of the work was so worthy of the divinity." In the execution of his works he also imparted a softness to the flesh, and a flow to the drapery, unknown before his day. Flaxman observes "that sculpture, as far as it is a representation of external form, was perfected by the predeces-

sors of Phidias, and that they appear to have prepared it for that infusion of spirituality, that fire from heaven, which it was to receive at his hands—the Prometheus of art.” The next phase in Greek sculpture is termed the “beautiful,” as the one just glanced at is termed the “grand;” and, as we have slightly sketched the towering genius of Phidias, we shall treat the more refined productions of Praxiteles in a similar way. His compositions were full of a tender and voluptuous grace, subdued and chastened by a spirituality, which redeems them from the charge of the sensual. The best works of Praxiteles are said to have perished; the original of the Venus de Medici is attributed to his graceful chisel. Lysippus may be ranked between the two, as he combined a delicate conception with a somewhat lofty and sublime illustration; at least such is the character of his works by ancient writers.

From Greece the arts travelled to Italy, but there they underwent but little change, as the Apollo and the Venus still “enchant the world,” and the Italians have scarcely approached the majestic beauty of the one or the divine grace of the other, in their sculptured productions. The revival of art, as it is called, and the fancied parallel between Italy when Michael Angelo appeared upon the scene, and Greece when Phidias had given his Jupiter to the world, is more ingenious than truthful; and the mind must be strangely desirous to accommodate facts to the assumed parallelism, or it would scarcely venture to compare the Moses of the Italian sculptor with the Jupiter of the great Greek. From Italy we may pass to France and Spain, where art began to take root in proportion as the wealth of those countries attracted the cupidity of the Church of Rome—

“Who spread her conquests o’er a thousand states,”

and who made everything, within human grasp, subservient to her sinister purpose. Out of evil, however, there sometimes comes good; and to the church we are indebted, in some measure, for the progress and perfection of modern art, though it is too readily assumed that to her alone must be attributed the aid and support which art received. It is, we think, assuming too much to aver that art would never have survived had not the Church extended its patronage towards it; we might with equal propriety assume that the Church would never have been able to extend its power so greatly as it did, had not art lent its aid to fascinate the senses of its votaries and to attract the curiosity of its converts. They were mutually indebted to each other; but art would have sprung up had the Church

of Rome never been in existence, for it is a principle inherent and undying in the mind of man, and the circumstance of its receiving the patronage of the former may be attributed to the accident of the Romish Church being, for a time, the predominant power of the day. In Germany, there were no sculptors before the seventeenth century, and no works deserving of notice. The first name of note is Rachmüller, of Vienna, whose career is subsequent to the time just mentioned; and Willich and Barthel of Berlin, occupy similar positions in the school of art. The monument of the Emperor Maximilian, in the Church of St. Anthony, by Alexander Collins of Mechlin, indicates that the artist must have studied in the best school of Italy, so striking an example does it present of sepulchral sculpture.

England has some traces of ancient sculpture, but they are of foreign origin. Here, as elsewhere, the invisible hand of Rome may be traced, for she alone absorbed the genius of the age, in order that she might direct it at her will. Our cathedrals and churches, in spite of the Cromwellian Iconoclasts, exhibit several specimens of early sculpture, which denote, more or less, one common origin; and, in the eighteenth century even, nearly all the sculptors who flourished in England were foreigners—Roubiliac, Scheemacher, and Rysbruck, for example. It was only towards the conclusion of last century that a British school of sculpture could be said to exist, and Banks may be considered as its nucleus. There seemed, indeed, at that period a general development of genius throughout Europe, and the elastic property which the mind then exhibited serves to reprove the stereotyped dogmatism by which too frequently it is sought to be governed. Denmark, the cold and ungenial north, produced a Thorwaldsen, one of the most classic minds in the art of sculpture that has appeared for many centuries; Italy delighted in the reputation of her Canova; France gloried in the genial aspect of her Bouchardin and Pigal; and England was enriched by Bacon, Flaxman, and Nollekens. Art was confined to no country, genius was not the offspring of any clime, but both genius and art drew their inspiration from one common source, and fashioned their forms in unison with one common type.

We have said that the nations of Europe are nearly on a par in point of sculptural excellence. Whatever may be the relative merits of the modern productions of Italy, France, and England, for example, there are three pieces of sculpture which attest clearly that one and all of these countries occupy the highest ground in that art,—the Venus of Canova, the Virgin and Child of Pradier, and the Eve of

Baily. The first is a little meretricious to our taste; nevertheless it is a beautiful conception, and admirably executed. The second is a divine production, but slightly impregnated with modern gallicisms; it is not according to our notion of the Catholic Virgin, pure, simple, yet full of grace, but rather partakes of what we should term a purely French Catholic Virgin, having, in some degree, the jauntiness of expression of a Boulevard Mademoiselle, just fit for a *pose plastique* in the Madeleine, which, however, it beautifully adorns; while the third, to our conception, is beyond all description, at least in such common-place prose as we are obliged to indulge in. But we can easily avail ourselves of another medium to convey a faint resemblance of the original, and written by one who fervently admired, and lovingly appreciated, its refined beauty and expression.

“Nay—’tis no sculptur’d art—’tis she—’tis she—
The fatal fair, whose bright, betraying smile
Robbed man of Paradise—but taught him love!
Oh, more than seraph-beauty!—Even man
Is but ‘a little lower than the angels;’
While woman, lovely woman, all divine,
Transcends their glittering hierarchy . . .

Ah! on such

A face as this our primal sire might well
Gaze away Eden! Who that hung on lips
Like those, and listened to the utterings
Which made them eloquent, would still desire
The presence of angelic visitants,
Or sigh for cherub-warblings?—who that felt
That soft heart beat to his, while o’er that neck,
Locked in love’s fond embrace, his fingers twined,
Like ringdoves nestling round the tree of life,
Would deem she lured to death?

Yet—yet, she smiles;

Yet o’er her own sweet image hangs, enamoured,
While, still and stedfastly as she, we gaze,
And share her rapturous wonder,—deeming her
Scarcely less vital than ourselves, and breathless
Only from admiration!—Beautiful!
‘The statue that enchants the world,’ no more
Boasts undivided homage. Britain claims
The laurel for her son, whose genius bids
Its sweet creation start to life and light,
Lovely as Pallas, when the brain of Jove
Teemed with divine imaginings.”

HENRY NEALE.

In bust and monumental sculpture the English school ranks high.

The national character breathes in our busts and monuments of the highest class of art. The bust of Pitt, for instance, by Nollekens, is a finished illustration of the manly and masculine intellect of the great statesman. The spirit of the original lives in the marble. So also, may you perceive the mind of Scott, of Horne Tooke, and of Watt in the busts of the former, and in the monument of the latter. Chantrey in these several performances was truly successful; his own English character is thoroughly transfused into those three marvels of art. The delicacy of Baily's chisel we have already dilated upon; and that of his master, Flaxman, is unsurpassed either in ancient or modern art. These are the mere random recollections of the productions of the English school of art; there are numbers of others perhaps equally entitled to distinction. The two children in Lichfield Cathedral were designed by Stodhart, and executed by Legée, a Prussian artist, then working in Chantrey's studio, though the latter enjoyed the credit of that beautiful specimen of art himself. We stated this fact some twenty years ago, which somewhat annoyed the great sculptor, though full of fame and with ample materials to augment it, even if the "Two Children" were deducted from the sum of his performances. The French contributions of sculpture will convey but a slight impression of the fine taste and original conception which they occasionally display in their productions; while the Italian is proportionally richer than might have been expected, and amply illustrates the style and character of its sculptural art.

With these prefatory remarks upon the style of sculpture, in times past and present, we shall examine with greater interest the collection to which attention is now directed. Pray bear in mind that you have not one school to look at, but the collected productions of all the schools, at least of the modern schools, therefore it will require a little discrimination until you become familiar with their different styles, and their respective modes of treating the same subject. Nevertheless, with a little patience, we shall be enabled to arrive at a calm and correct conclusion.

We have remarked that illustrative and plastic art is now largely devoted to the actions of the great and good among mankind, and great because good, which must be viewed as one of the happiest features of the age; and such devotion can only have arisen from the improved condition of the human mind, and from the wider spread and more generally recognised humanities of man's best nature.

Art is truly and essentially catholic in its spirit, and never meets the eye in so touching a form as when it represents an object of unas-

sumed virtue, or an incident of unaffected goodness. The poor slave in the market for sale, with the fine instincts of her nature brutally ignored, is a more soul-touching object of attraction than a drunken Bacchante, however lusciously delineated; and where a single individual is drawn towards the latter, from a feeling of interest or sympathy, there are hundreds rivetted before the poor naked captive, whose indignant expression conveys a world of genuine and truthful sentiment. And what mind, irradiated with the faintest gleam of intelligence, is not able to discover a more pleasing instruction from the contemplation of a Jenner, for the first time enrolled among the familiar spirits of our growing and rational worship, than from all the mailed warriors, "from Macedonia's Madman to the Swede," who ever grasped a sword, or directed their drilled desperadoes to the destruction of their fellow creatures. Not that we wish to infer that warriors have been, or are, a dispensible and obstructive element in the civilizing process to which mankind have been so long subjected; but we view their illustrative diminution as an indication that more temperate and less hurtful instruments are required to effect the same purpose, and we may safely conclude that the general mind of society is greatly improved when humanizing agencies are more largely employed to influence and direct it.

Wandering amongst statues that almost border upon the sublime, images of men of great virtue and noble deeds, and of delicate and graceful women—many of which display a marvelous knowledge of proportion, and, also, of what is more rare, pleasing and profound expression—we are at loss where to begin, and, perhaps, shall be equally puzzled where to end our critical observations.

As we have incidentally alluded, however, to the "Greek Slave," by Hiram Power, which attracts so much attention from the waves of human beings that occasionally sweep past it, it may be as well to select that object first. This statue has great beauties and great defects, but the former are of so touching a nature that we are kept away, so to speak, from the observance of the latter. In feeling it is admirable. The subdued and indignant expression at her ignominious position is truthfully portrayed in every feature, and there hovers round the lip that contemptuous scorn which woman can so well express, when needed, against her unmanly oppressor. The naked figure is an appropriate illustration of the leading sentiment of the statue, and, though not badly conceived, is somewhat indifferently executed. The artist's mind does not appear to have been severely disciplined in the beauty of form, and the nicely-adjusted

anatomy of the female figure. The arms hang as though they did not belong to the figure; the left-hand seems mechanically placed in its present position, and has little affinity with the feeling which seems ready to burst her very heart; and the leg upon which the figure rests has the least development of muscle, though it ought to exhibit a fuller development than the other. Indeed, the whole configuration of the frame, with the exception of the shoulders and the bust, is so still-life, so lay-figure like, that it seems as though it were borrowed simply to support a life-like and animated head. As the "Greek Slave," however, is an imaginary form, there is no moral obligation to treat her as the poet treated his living delinquent:—

"If to her share some female errors fall,
Look in her face, and you'll forget them all."

And we are almost disposed to follow the advice of the poet, looking at the marble-creation of Power; still, upon second thought we would rather see it with head and shoulders alone, as we then might have the pleasure of contemplating one of the finest productions of modern sculpture.

Imagine, reader, the "Startled Nymph" of Behnes, placed side by side with the "Slave," then you would have the very contrast, in every respect, where the beauty of form and the truthfulness of gesture are displayed. Run your eye down that beautiful nymph and you will experience considerable difficulty in alighting upon the slightest defect, either in attitude or in figure; all is graceful, delicate, and to the nicest touch of nature. The sentiment, however, embodied in a nymph startled by an adder, is not quite so captivating and *exalté* as that of a young and innocent girl, who is too bashful and too chary even to

"——— Unmask her beauty to the moon,"

and yet finds herself naked in the market-place, exposed to the prying eyes of some old "neutral" dealer, who is looking more to his sequins, than to the sensibility of so delicate a piece of merchandise. How every mother must have her feelings excited at the ideal representation of ills which have befallen daughters ere now; not that a mother or her youthful child runs the remotest chance of experiencing such treatment in these times, but

"One touch of kindness makes the whole world kin."

And the magic genius of the artist has

"——— Bid their breasts with ancient (?) ardour rise,
And called forth Grecian drops from British eyes."

Now, many a fair daughter of England has been occasionally startled

at a reptile or an insect—at a toad in the garden or a black-beetle in the kitchen, for instance, but, as a matter of course, not in a nude state, in either of those localities—so that there is very little of the touching and sentimental in the idea of the “Startled Nymph,” though the artist has managed to invest it with a considerable amount of interest. The idea has apparently been adopted to enable the sculptor to exhibit his mastery over the delicate and graceful beauties of the female form, which is the prevailing feature of the statue; whereas the sentiment appears to predominate in the “Greek Slave,” and in the thrilling effect of the latter, you are disposed to overlook the absence of the former. But, as far as the merit of a work of art is concerned, especially sculpture, whose excellence is mainly dependent upon delicacy of form and beauty of outline, there is little comparison between the “Startled Nymph” and the “Greek Slave.” The first is a perfect specimen of ideal beauty; the latter is a somewhat defective representation of a cruel, yet touching, incident.

Turning to another of the *rare aves* of the Exhibition, we find ourselves again at fault, according to the ordinary mode of forming a judgment upon objects of sculpture. The “Veiled Vestal” of Monti is one of those innovations which keep in abeyance the ordinary canons of criticism, by departing from the simple and the beautiful, and entrenching upon the artificial and meretricious. This may be called the prettiness of sculpture, which a severe, correct, and highly refined taste would at once discard from the category of the truly classical; nevertheless, it has its admirers, and those by no means of an inferior order of intelligence in such matters, therefore it must be received with courtesy and criticised with caution. When Gerard Douw, as the story runs, was shown a picture which the artist had painted with his feet, that distinguished genius exclaimed: “More fool he; why did n’t he paint it with his hands, he would then have done it much better and much quicker.” Now, as the recognized aim of sculpture is to produce accuracy of form and beauty of expression, and as Monti, we have a right to assume, aimed at both, would he not more effectually have attained his end by dispensing with the veil upon his vestal? To be sure the moon, as some poets maintain, looks more beautiful when filmed over with a cloud, as there is something left for the imagination to speculate upon, and for fancy to charm the mind with its indefinite suggestions, than though the “fair goddess of night” came full flush upon the naked eye of the spectator. In the hands of Monti, even assuming that the “Vestal” is not a departure from the pure and recognized principles of art, as applied to

sculpture, this meretricious mode of representing the "human face divine" may, perhaps, be tolerated, though that concession is very questionable, seeing that we have a "Veiled Beggar" and a "Veiled Slave" by the same artist; but once give a latitude to that school of art, if we may be allowed the term, by purchasing its productions, and we shall be inundated with "veiled" faces,

"From saint to sinner, from beggar down to slave."

We, therefore, respectfully maintain, clever though it be, that the "Veiled Vestal" is not in unison with the pure principles of art, as practised by the Greeks, who were perfect masters of sculpture, and have handed down to us the finest specimens that it is possible to conceive, and which we moderns, with one or two rare exceptions, can only humbly follow and feebly imitate. If we except the "Eve" of Baily, perhaps the finest production since the days of Greece, we have little more than distorted copies and spiritless imitations of their beautiful bequests, search where we may throughout Europe.

The "Captive Love" of Fraiken brings us back to the simple and beautiful in sculpture. There we have no tricky touches, no distorted devices, to improve nature. The artist has learned the secret that she is,

"When unadorned, adorned the most,"

and has judiciously presented his figure in a perfectly nude state. The conception is beautiful, the execution is perfect, and the whole contour of the production is charming, chaste, and delicate. With the exception of Behnes' "Startled Nymph," it is, perhaps, the finest piece of sculpture in the Exhibition, as regards female form and delicacy. The idea is entirely original, and is worthy of all imitation. The "Odalisque and Butterfly," in the Sèvres room, is a simple and effective illustration. It conveys to the mind, at once, the innocent aspirations of a young captive, and the insect in her hand aptly represents her own condition. The expression of the young girl's features, eyeing her captive, is so true to nature—she seems to enquire, "whence have you come, and whither will you go?" and a dreamy, instinctive feeling comes over her that she would like to accompany it in its flight. Utter captivity to a young girl, just dawning into life, innocent, enquiring, and intellectually inclined, must be the bitterest, the most hopeless, of all conditions in this conventional world; and we may imagine it to exist in the sculptured production of Lemaire. The "Drunken Bacchante" of Glesinger is one of those extravagant freaks of fancy which the *extravaganza* order of mind in France loves to indulge in. A Bacchus in a drunken state

is bad enough for a sculptor or a painter to represent, but no pure-minded artist, with the slightest *morale* in his nature, would ever dream of desecrating his chisel by representing woman in that revolting condition. It is the duty of art, and that duty is strictly allied to the holiest and purest of our nature, to elevate the mind by selecting subjects of a refined and delicate tendency, and not to prostitute the fine gift of the Deity by painting a stew, or by chiselling a fallen angel of society wallowing in grapes, after becoming lusciously inebriated with them. As a work of art it is above mediocrity; but there are several great defects, irrespective of the leading one just mentioned. The prominence of the bosom is too great for a female of the age which the contour of the frame would seem to indicate. The breasts are as large as those of Rubens' gigantic dames, whom he so prolifically represents on canvas; and there they would be in place, and in unison with the other portions of the figure, but outrageously wrong in the "Bacchante." Again, the position is somewhat distorted, and were it true to nature under such conditions, the anatomy of the frame does not correspond with it. The projection of the ribs, and the general lankiness of the surrounding parts, are not to be found in the nicely rounded frame of a fine figure, and artists ought to represent nature ideally right, though in models they frequently find her really wrong. The expression, however, of the face, the position of the hands, the cup, the grapes, and the general features of the composition, are somewhat powerful, but, as a whole, it is essentially gross, and denotes that the mind of the artist is rather saturated with vice than tinctured with the finer essence of virtue.

Our old favourite "Eve" is embodied in zinc, by Geiss; surely the artist, that is, the creator of Eve, could have supplied, by some means, a marble representative of her to the Exhibition. Either listening, or startled at her own shadow in the water—both exquisite productions—she would have been equally acceptable, and certainly entitled to the highest award as a work of art. The "Eve" of Baily is the embodied representation of innocence and purity, and the more you contemplate her beautiful expression, the more chaste and refined becomes the feelings of the spectator. Dryden's allegorical description of the purity of the Catholic religion may not be inaptly applied to "Eve at the Fountain."

"A milk-white hind, immortal and unchanged,
Fed on the lawn, and in the forest ranged :
Without unsported, innocent within ;
She knew no danger, for she knew no sin."

Talking of Eve and the old story of her fall, we ought not to pass by the production of E. B. Stephens. Apart from a defect or so, it is a powerful, original, and cleverly executed piece of sculpture. The expression of Satan is highly suggestive of his once lofty and commanding position; there is the god-like brow, the intellectual eye, and the finely-arched contour of a once superior being; yet there seems a moody spirit to pervade all these fine features, as a cloud sometimes overshadows the rich and glowing sun. There was the great difficulty for the artist to overcome. The Satan of Stephens has a true Miltonic touch; there is still the remains of a once better state—the fallen gentleman of old. The position, the expression, and the entire conception of Eve is also truly original; and, had it been placed in a better light—for the transept is too trying for sculpture,—it would appear to much greater advantage.

We prefer Monti's "Eve" to that of M'Dowell. Nevertheless, the latter is a fine figure, most gracefully and artfully attitudinised, and bears some resemblance to what we could imagine would be the case, were a well-shaped young woman of modern society to find herself accidentally in Kensington Gardens, in just the state in which we have a right to represent the first of the fair ones, the great mother of us all. There is a fine, arch, artful expression in the face of the figure, but it expresses too much for the simplicity and purity which it assumes to represent. In other respects it is an able production, but it ought not to be called Eve. The "Andromeda" of John Bell is one of those performances which all must approve of, and which some few will largely admire. It is so simple, so chaste, so feminine, so domestic in its character, that innocence instantly recognises its own features, and propriety looks approvingly at its every expression. Nevertheless, to our mind, it is somewhat tame, much as we admire it; but the material is not the best for illustrating the soft and flexible—after all the great charm in the female figure. In marble, executed by the same artist, in the same spirit, the Andromeda would rank with the choicest productions of modern times. Cuyper's "Canadian Mother" is an affecting incident to embody in marble, but he might as well have omitted the exuding of the milk from the breast; it is an exaggeration that violates the instincts of nature, which never errs. In other respects it is a truly powerful piece of sculpture. "Leda and the Swan" is another of those subjects which convey an ambiguous moral to the spectator; the artist has evidently a fine executive power, but with a dash of the libidinous in his mind. The "Dead Mother and Child," by Lechesne, is, in some respects, a very

able production, but in others highly defective. In the first place, the mother is too large, and why is she represented as dead? The incident of her death is not indicated, and her condition is of too vigorous and pulpy a nature to suppose that she died from inanition. This is a great defect, and renders the story incomplete. The eagle is ably conceived, its wings and body minutely worked out, and its purpose evident; so also is the infant clinging hopelessly to its dead-alive mother. The figure of the female is much too large; still, on the whole, it appears effective. The "Two Girls Fishing" form a beautiful group; the expression of the upright figure is, according to our conception, all but divine. The "Ino and Infant Bacchus," of J. H. Foley, is so well known that we can be spared a description of it; nevertheless, it is always entitled to recognition, and has but few equals in beauty of form, and originality of conception. The "Dorothea" of Bell is a charming illustration of innocence, and the "Sabrina" of Marshall is equally excellent. The latter figure, indeed, ought to be ranked amongst the choicest productions of the room; its creator, Marshall, having the right and true feeling of an artist. The "Suppliant," by H. Weeks, is an effective conception; original, expressive, and classical. It deserves a better place, under a more subdued light; then its telling qualities would appear to due advantage. The same remark will apply to his fine statue of the Marquis of Wellesley, a singularly original, and even eloquent, though mute, representation of that distinguished statesman. Its external appearance is striking from its simplicity; but the inner man is there, which shows the grasp of character possessed by the artist.

In single figures the sculpture is somewhat rich, especially in the English contribution. We have already noticed two. The "Ariadne" of Kirk, and the "Rosamunda" of "John Thomas," may be added to the list; both of them evincing qualities of a rather distinguished excellence in art. The "Venus and Cupid" of Jaquet is a beautiful conceit, and effectively worked out: and the "Orphans," by Miller, is a truth-telling, simple, yet appealingly expressive group. There is a delicate figure of "Glycera," by R. J. Wyatt, and a "Nymph," by the same artist, though not so ably executed in its anatomical illustration; still it is a pleasing performance. The "Massacre of the Innocents," exhibited by the Art Union, is ably executed, and beautifully conceived, and must be widely diffused, from its simple outline and its adaptable form. M'Dowell's "Girl and Dead Bird" is a poetical conception, and very chastely delineated. The two figures of Baily are after his own style, but somewhat tame in expression; never-

theless the "Tired Hunter" is a graceful performance, and, with the dog, makes up an excellent group. The light is far too strong to give them a fair chance. The figure of "Whittington," by Carew, is an original and truthful conception; in marble it would tell its tale admirably. "Cupid in Disguise," by E. G. Papworth, is a pleasing conceit, full of fancy, and might be applied in many ways to manufacturing ornamentation. The "Babes in the Wood" is too close an imitation of the well-known group of Chantrey, to say nothing of the surplusage of the wreath over their bodies, which detracts materially from the otherwise simple and expressive outline of their figures.

In statuary the English are more happy than their continental coadjutors. The fine statue of Sir W. Follett, by Behnes, is a study of itself; the character of the original is stereotyped and purified from its work-a-day taint by the genius of the artist. The lawyer-statesman breathes again in the stone. The figure of "Jenner," by Marshall, is a most welcome addition to the art and genius of the country, not altogether for the executive power of the artist, which is considerable, but from its being exercised upon so noble and elevating a subject. Jenner ought to have been put into marble long ago; his services to mankind may be traced on almost every feature that one meets with in the journey through life, not scarred and scarified as of old before he introduced his preventive cure, but fair, smooth, and comely as though the "ill which flesh is heir to" had been entirely eradicated by his curative genius. These are deeds worthy of all fame; yet the public is slow to recognise their true value, though they are daily and hourly receiving the benefits of them. If statues were erected in material, according to the relative value of the characters they represent, Dr. Jenner ought to have one in gold, with the Koh-i-Noor fashioned into eyes for his head, and the finest site in the world to place it upon. "He was not for an age, but for all time." The whole world have enjoyed the precious fruits of his labour, and nations yet unborn cannot fail to appreciate them. The "Duke of Rutland" in bronze is a heavy representation of an able-minded man; as a work of art, we must humbly premise, it is totally unworthy of so distinguished a character. The Siamese Lawyers, Lord Eldon and Stowell, look remarkably tame, clean, and heavy, the execution being much better than the conception. They appear like two men in a barber's shop, just ready to be shaved, so muffled up and robed to the chin has the artist represented them. The statue of the "Marquis of Bute," by Evan Thomas, is a well-executed work of

art; the attitude is somewhat imposing, and the external paraphernalia is artfully and artistically arranged. Upon the whole, it is the most effective statue, if we except the Marquis of Wellesley, in the whole Exhibition. Flaxman, the great master of his art, is *done* in marble, and such a *do* we certainly never beheld.

Now for the cavalry. Her Majesty in "yellow," and Her Majesty in "white," immediately behind, are rank plagiaries from the Twelfth Night artists, who supply the pastry-cooks with models. The "yellow" and the "white" chargers are only full-grown copies of "paste and sugar" from Gunter's. They have all the peculiarities of his breed—full of action without expression; but there never was, and never will be, cross the breed as you may, a living quadruped like those *four-and-sixpenny* four legs (that is about the price paid extra when a horse is put upon a cake) that Her Most Gracious Majesty has been so unceremoniously placed upon. Passing from such figure imitations of our noble four-footed friend, we come upon another, which is certainly a great improvement in make, shape, and spirit, and has all the outward and visible appearance of being copied from life. But, however skilful the copy, the original must have been anything but a model to copy from, nor does the artist seem sufficiently acquainted with anatomy to supply the apparent deficiency. "Godfrey de Bouillon," by E. Semonis, is a colossal statue, which perhaps is placed too near the spectator to appear as the artist designed it, when working it out with his chisel. These allowances must be made, when looked at in the Exhibition; nevertheless, with all due abatement on that head, we consider it as a tame and coarse attempt at the heroic and gigantic class of art. It is wanting, to our mind, in fire of expression, in energy of action, and is especially clumsy in incident. The sword would have been a much more effective weapon to grasp than the standard, if such a term may be applied to the latter. The horse is a copy of a good specimen of the heavy Flemish breed—after all a bad model for sculpture, however chronologically correct it may be to select such a horse for the rider. In the bronze statue of "Richard Cœur de Lion," by Marochetti, we have a much more spirited production of the colossal kind. The figure, expression, and attitude of Richard are singularly commanding—the uplifted sword seems grasped with an energy and determination peculiar to the time, and his seat on the horse is easy, light, but withal secure. The horse itself is somewhat a failure. The head is an exact copy of the Greek model in the Museum, a metal cast of which, to the full size, by Elking-

ton's Electro-process, may be seen in the western nave of the Exhibition. Still, though a copy, it is ably done, and all the fore part of the horse seems as animated as the rider, and fully conscious of the important burden it has to bear; but just cast your eye along its flanks, then run it down his hinder legs, and you will there see the defects. The animal is as quiet behind as though he were half-dozing in the stable, with his belly full of hay and corn, and standing with one leg perfectly at ease. But how does this hinder position comport with the outstretched, muscle-strained fore-leg, pawing in the fulness of action, and ready to obey the instant command of its rider? It does not comport with it at all; it has no apparent connection with it; the animal is fast asleep behind and wide awake in front, which, quadrupedally considered, is a very grave defect. Returning to the eastern nave, we have now a fair view of Kiss's "Horse and Tiger," the much talked of and justly admired statue in bronzed zinc. Anatomically speaking, the animal is as near perfection as it is possible to conceive; nevertheless, to our conception, there is one great error in it: why are the ears of the horse thrown back when placed in such a position? We know the ancients adhered to that form of representing the animal, but had they seen it under extreme terror, with every limb quivering with fear, which is invariably the case whenever a horse is attacked by one of the ferocious tribe of beasts, they would have represented it otherwise. The horse has an instinctive dread of a wild beast, and in ninety-nine cases out of a hundred is completely prostrated under its attack. In what position are his ears when thus terrified? Not thrown back,—which rather indicates mischief, and denotes a consciousness of power which it is preparing to exercise. Under an apprehension of danger the ears are pricked forward and changed about almost every instant, but scarcely ever dropped as expressed in M. Kiss's horse. If we be right, which we fully believe, then is it an error, and in a work of so much excellence we may probably be pardoned for presuming to point it out. Again, ranging your eye over the near side of the horse until you reach the tiger, you will find that the vertebra of the latter is bent to a curve, such as nature could not possibly admit of, even in the flexible vertebra of the feline race. And the right shoulder of the beast is almost flattened to the horse's neck, as though it had the power to diminish its limbs to any extent that might suit the artist's notion of preserving a graceful outline, and a comparatively unprojecting surface. These, we conceive, are defects, and are justly open to remark; however indiscriminate may be the general observations

of the public upon its merits. It is, however, to say the least of it, a very able performance, and reflects the highest credit upon the country that produced it. The artist, we believe, is a Hungarian.

"Giotto's First Attempt at Drawing" is a highly interesting incident and ably worked out, if we except the hair, which appears cropped too close for sculpture to delineate gracefully. The "Dog protecting the Child from the Snake" by Luchesne, is an able performance, and justly attracts many a sympathizing spectator; and the *pendant* to it is equally effective. For power of a certain kind, and limited in degree, there is scarcely an object in the Exhibition to equal it, except the "Unhappy Child," which has broken its drum. In almost every sense, the latter is a perfect *bijou*; the expression of the unfortunate urchin is so true to nature.

In allegorical subjects there are not many contributors, if we exclude the Fallen Devils and Michaels, which are almost as "plentiful as blackberries;" but the latter are simply statuary groups, the allegories to which we allude are bas-reliefs. Carew has a large one, called the "Descent from the Cross." In some respects it is an able performance; but, on the whole, it appears a much ado about nothing that is very agreeable, and fails to convey a single sentiment likely to interest the general spectator. The head of Christ forms an effective relief to the group, but the different figures evince little sympathy and earnestness of purpose in the work in which they are engaged. Opposite to this large relief there is one of less ambitious pretensions, and of much more effective merit. The "Spirit of Science unveiling Ignorance and Prejudice," by Evan Thomas, is not only *apropos* to the place, but is highly suggestive of the prevailing sentiment which the Exhibition embodies. Still, to our mind, it has its defects. However strange it may seem, we had rather the figure of science had been altogether omitted, and the genius of science in the form of a winged angel, in bold relief, in its place. A change of this nature would more effectually illustrate the meaning of the fine text, as the figures of prejudice and surprise on the one hand, which are ably conceived, and the youths of the present generation on the other, would appear to much greater advantage. Upon the whole, however, it is by far the ablest allegory in the Exhibition, and, with a slight alteration, would come out as an original and spirited composition. The "Hunter and Dog" of Gibson is a fine piece of sculpture, worthy of the artist who executed it; and the "Allegro" and "Penseroso" of Durham are two effective heads, somewhat poetically conceived, yet heavily worked up, especially the former.

There are a few more objects worthy of notice that we recollect, and several that we may have omitted; amongst the former we must not omit the "Horse and Dragon" by Wyatt; as it deservedly attracts a great deal of attention, especially from horse-fanciers and others accustomed to the anatomical development of the animal. In many respects it is an effective group, and would be more so were the dragon a little less or the horse a little larger. As it is, the horse is much too small; the poor creature seems literally up to its knees in the convolutions of the dragon, and the only wish we have is, that so spirited a creature would leap right out of its entanglement. The figure of the horse is excellent, with two trifling defects—the nostrils are *distorted* not *distended*, a proper distinction, as the former could not possibly occur to any horse, unless the animal possessed the power of turning the nostrils inside out. The other defect, if so it may be called, is that there is too much flesh represented for a perfect development of the muscular power of the animal. In every other respect it is the ablest representation of the horse in the Exhibition, not excepting that of Professor Kiss. Of the dragon we shall say little, except that we cannot comprehend what is the meaning of the schoolmaster's baton in its jaws? Be that as it may, the artist has somewhat cleverly arranged so uncongenial a creature, as a suitable base for his nobler superstructure. The "Mazeppa" of Pierotti is admired for the representation of rough vigour and truthful expression of the poor victim who was doomed to such an ignominious and cruel death. The men who are binding Mazeppa to the horse are singularly effective, much more so, indeed, than the horse itself, which is rather mediocre. On the whole it is a very spirited performance. Let us not forget the "Bust of Monti" by Sangiornis; it is worthy of note, from the pleasure which may be experienced in contemplating so fine a head, which contains a spirit so finely tuned to the living thoughts of the age. It is ably executed. The "Madonna and Child" by Leholte is a commanding group, and reflects great credit upon the Belgian school of art; but the contribution of Pradier does not come up to his acquired reputation, nor, indeed, do scarcely one of the French sculptors.

The two pieces of sculpture in the Roman contribution are peculiarly interesting. One forms a pendant to the other, each representing a "Child and Dog;" in one the child is asleep, and the dog is gently patting its clothes; in the other the dog is reciprocally rewarded by the child performing an act of kindness for it; and in both the incident and expression are feelingly maintained. Stepping across

the nave, from this point of the Exhibition, you will have an opportunity of examining the "Woman and the Lion," by Geefe, which attracts considerable attention from the oddity of its illustration. A nude female, beautifully chiselled, and seated upon a lion, is coolly cutting his claws; the beast, apparently fascinated with her beauty, quietly submitting to be deprived of his power. The arch look of the woman, and the silly, love-stricken expression of the lion, are excellently depicted; indeed, nothing could tell its story better than this group does, and scarcely needed the following conceit to assist it:—

"Amour, amour, quand tu nous tiens,
On peut bien dire—adieu prudence."

While on the subject of the fine arts, let us not omit the beautiful silver-work of Bologna; it must be seen to be appreciated, any attempt to describe its airy, cobweb-like lightness would fail, however felicitously worded.

Returning to the transept, we recognize "Virginius and his Daughter," by M'Dowell. After looking at it again and again, we come to the same conclusion—that Virginius is much too large in proportion to his daughter, whom he holds in his arms. The latter is like an infant compared to the father, which materially detracts from the effectiveness of the group. In other respects it is an able production, although some objection may be made to the expression and attitude of the principal figure. The "Eagle-slayer" of Bell is a spirited production, and is deservedly admired; the only objection that we dare venture to make against it is, that it is a little too strained. The figure does not denote that possession of strength which the artist intended to represent; the effect, as expressed in every limb, is too great to be continuous and sustained. In other respects it equals the best works of sculpture in the Exhibition. There are two noble figures, *en face* to each other, in the transept, the "Falkland," by Bell, and the "Hampden," by Foley; both spirited representations of the manly and thoroughly English character. The "Youth at a stream," by the latter, is a classically-conceived idea, and effectively worked out. The "Statue of Shakspeare," by Bell, is somewhat quaint and tame, so, at least, it appears to us.

The bas-relief of the "Mother and Child," in the western nave, is a sweetly affectionate and domestic representation; the expression of the mother is truly maternal, and that of the child as pleasing as such expressions can possibly be. The "Mourners," by Lough, is greatly admired, from its simple and effective illustration. The horse is a little too tame in the hinder parts; there seems little sympathy

with its anterior expression. The "Shipwrecked Sailor" thrown upon a rock, grasping the portrait of his mother in his hand, and, apparently, at his last gasp, is out of place in the transept, just close to the "feeding department." While the crowds are refreshing themselves, it is no great treat to be looking upon a dying man; besides, due effect is not given to a really powerful piece of sculpture. And last, though not least, the noble group of Engel, representing an episode in the conflict of the Argonauts and Amazons. It is ably conceived, and artistically worked out. The expression of the female, who arrests the arm of the intended slayer, is remarkably effective, and embodies the whole spirit of the incident; so, also, is that of the prostrate Argonaut. The group, as a whole, is certainly one of the ablest in the Exhibition.

The portrait of Her Majesty, on Sèvres china, by A. Ducluzeau, after Winterhalter, is a pleasing and artistic production, especially as regards the general arrangement of the colouring, which denotes a refined and highly-disciplined taste. So also is the portrait of Prince Albert, painted on the same material; it is a copy from the painting of Winterhalter, by Bezarget, and exhibits the usually felicitous colouring of the French school.

Turning to the bronzes in the French department, we are much struck with their artistic taste and originality, especially those of Lechesne, Vitzthum, and Susse. The Barbedienne collection, as you enter the Sevre room, are also remarkably fine, both in expression and execution, representing the antiques to perfection. The "Dancing Fawn," in the nave, by Lequesne, is likewise a spirited reproduction of the original. France is, certainly, most excellent in this department of art.

Examining miscellaneous art, we must call attention to the picture-printing of G. Baxter, which has become so generally ornamental to a variety of publications. The specimens of this singular invention are especially interesting. The "Anastatic-printing" of S. H. Cowell is, also, another step in the direction of lessening labour, and augmenting effect, which is deserving of attentive examination; so, likewise, is the "Colour-printing" of Kronheim, which resembles cotton-printing in the progressive serial by which it is effected. The "Descent from the Cross," after Rubens, is selected as an illustration of the process, and, as each colour requires a separate impression, it may readily be imagined how many will complete a representation of that noble picture. The whole series, however, are shown in the contribution of Mr. Kronheim. Another invention, of considerable

importance in the illustrative branch of publication, is afforded in the Engraving-process of C. Chabot. There we have specimens of zincographic, medallion, and sculpture engraving by machinery, producing as fine a relief as though they had been produced by the tedious operation of the burin, but at a much less cost, which is a great desideratum in estimating the value of new inventions. Leake's Basso-Relievo Leather Tapestry presents a beautiful material for ornamental and decorative purposes, and, doubtless, may be applied with considerable effect.

Ingram's "Patent Enamel Painting" is a pleasing addition to the elements of art, and may be applied most effectually for the illustration of certain objects. The Paintings on Ivory by Sir W. Newton must be ranked with the most exquisite contributions to the Exhibition. The "Homage," and the "Marriage," are both well known, respectively representing two important incidents in the life of Her Majesty; the "Marriage" is especially interesting. As works of art they deservedly rank high. "Printing on Glass," by Sanders Trotman, is effective, and may be usefully and ornamentally extended, where decoration is required; and a "New Method of Ornamental Engraving by Voltaic Electricity" will attract attention, from its proximity to the most powerful agent of the day. The designs for Table Covers, by C. Hadder and Florence Collins, are artistically conceived, as well as practically worked out; both these artists evidently have an eye to the uses which their productions will be applied to. "Shakspeare's Table," by Luke Limner, representing the Seven Ages, is a clever production, and would make a very interesting addition to any room where the great poet (and where is he not?) is an especial favourite. Reeves and Sons have contributed specimens of their artistic commodities, such as colours, pencils, &c.; and so have Rowney and Co. in a more extended form, which attracts considerable attention. But neither of these colour-dealers equals the display of Winsor and Newton, in the South-West Gallery, one of the finest contributions of its kind in the Exhibition. As to the quality of the materials we can say nothing; artists themselves must be the best judges, after using them; we simply point to the spirit and energy exercised in the display, which is highly creditable to the last-mentioned firm. A "Colour Box," designed for her Majesty, is a chaste and delicate production, and reflects great credit upon the taste of the Messrs. Ackerman. The specimens of bookbinding by Churton are characteristic of the art in its various ramifications, and will prove interesting to those who take a pleasure in imparting to their favourite

volumes an 'outward and visible' covering suitable to the internal spirit of each; and the same remark may be applied to the contribution of W. S. Orr and Co., which also is in immediate relation to the same purpose, but somewhat more diversified in its nature. The latter firm also exhibit a series of maps, illustrative of the physical phenomena and features of the globe, which are highly interesting. Nor ought we to omit the "General Atlas" of "J. Wyld," with its sixty-seven illustrative maps, having the same purpose in view—to facilitate instruction and extend the blessings of education.

CHAPTER XV.—WOOD CARVING.

AN interesting chapter might be written on the art of carving on wood. There are materials for such a chapter in this country alone, irrespective of the rich treasures on the continent, which are as diversified as they are abundant. In our cathedrals, in our churches, and in the private mansions of the nobility, there are, more or less, so many and such varied specimens of the art, that its progress amongst us may be traced from the rudest efforts up to those of the most refined and delicate order.

We have already remarked in the chapter on sculpture, that the Church of Rome materially extended the cultivation of the arts, in order to augment her influence, and consolidate her power—that she insinuatingly established her spiritual dominion through the medium of temporal instruments—therefore it is almost unnecessary to repeat that the majority of the stalls, the screens, the pulpits, and other decorated portions of our ecclesiastical edifices, are the result of her dominating presence. The Chapel of Henry the Seventh in Westminster Abbey, the cathedral churches of Durham, Exeter, Gloucester, Canterbury, York, &c. &c., and several other buildings of similar antiquity and character were originally decorated with wood sculpture. The figures, sculptured upon the chesnut-roof of Westminster Hall, show the degree of excellence the art had attained in this country, so early as the reign of Richard the Second. Long afterwards, sculpture in wood continued to increase in excellence and public repute, for we find that productions of rare beauty subsequently increased, and that native and foreign artists of skill were liberally employed. The number and variety of these productions are almost as extraordinary as

their merit and beauty, but, if we except a few lovers of the art, whose prying perseverance has been largely exercised, the whereabouts of these productions is but limitedly known.

The head of Henry the Third, carved in oak, is one of the most ancient specimens of English carving. Horace Walpole describes this relic with interesting minuteness. An oak chest in the treasury of York Cathedral, upon which is sculptured a series of five bas-reliefs, representing the legend of St. George and the Dragon, and a chair, richly carved in oak, in St. Mary's Hall, Coventry, are uniformly pointed out, by all lovers of the art, as rare and choice specimens of wood-carving.

Wood-carving was frequently made subservient to the satirical feelings of the day, when the priests, dependants, and hangers-on of the Church of Rome, had become corrupt, flagitious, and debased. It was the favourite medium for the caricaturist to convey his cutting, racy, and killing gibes. There are numerous bas-reliefs, particularly those carved underneath the seats of choirs, that represent grotesque and even obscene subjects, which are altogether at variance with the sacred character of the building in which they are placed. The principal figures in these sculptured reliefs are priests, or friars, or monks; and the actions in which they are represented are sometimes profane and disgusting, even in the extreme. The different religious communities were frequently at variance with each other, and like the scorpion which is fabled to kill itself with its own sting, they satirized each other's follies, and mutually gibbeted their vices for the edification, we presume, of their successors. These were the signs and tokens that a great change was coming on—that the atmosphere in which these creatures moved had become foul and foetid, and that nothing short of a violent storm could impart to it “a sweet and wholesome odour.” The Reformation came—we all know the result; but these carvings on wood are, nevertheless, well worth a passing remark, as they incidentally illustrate the state of the public mind, and the peculiar condition of art. The Franciscan represented the Carthusian as licentious, ridiculous, and debauched, and the latter, as a matter of course, returned the compliment in similar coin. Here may be traced the origin of those grotesque and offensive designs upon some of our most ancient ecclesiastical edifices, which for a time perplexed both the antiquarian and historian.

In the reign of Elizabeth, the art of carving on wood appears to have arrived at its zenith. At that period the houses of the nobility were adorned with the choicest workmanship of sculptured wood,

and objects of furniture made of British woods were richly carved, in accordance with the prevailing taste of the age. The finer specimens of this class of art are somewhat scarce, and are therefore in great demand amongst collectors, dealers, and antiquarians.

Leaping over a large space in the history of the art, we arrive at the time when Grinling Gibbons lent the spirit of his genius to exalt its excellence in this country, Walpole remarks truly—"That there is no instance of a man before Gibbons who gave to wood the loose and airy lightness of flowers, and chained together the various productions of the elements, with a free disorder, natural to each species." And so delicate was the workmanship of Gibbons, according to the same authority, that a carved pot of flowers in a room shook as though they were natural, by the mere motion of the coaches in the street. The chapel at Windsor, and the choir of St. Paul's, contain some foliage by Gibbons, executed in the most artistic manner. His heads of cherubs possess a sweetness of expression and an angelic loveliness, which, as long as they exist, will render them the admiration of all lovers of ideal beauty; and his picture-frames, where dead game, flowers, and foliage almost deceive the eye into a belief of their reality, are equally marvels of the art. The works of that gifted genius, in fine, are scattered over the country, and attest the beauty and perfection to which that branch of art had arrived. There are other wood-sculptors who are also deserving of notice, having enriched and kept alive the art amongst us, had we space to devote to so useful a purpose, but must content ourselves with simply citing one, under whose tuition a rare genius of the present day first began to develop its latent powers. It was Bird, of Bristol, whose carvings on wood are justly appreciated, that first suggested to Baily the idea of modelling figures, and determined the ultimate direction of the sculptor's mind.

In France, in Switzerland, in Belgium, in Italy, and in Germany, the art of wood-carving has been more or less sedulously pursued, and much more so, indeed, than in this country, if we except the illustrations of literature, in which we have been more than usually prolific, though it has not been entirely lost sight of here, as the several productions of our artists and artisans clearly prove.

The contributions of wood-sculpture to the Exhibition are singularly rich, diversified and artistically ornamental. The Swiss have sent us some specimens of the state of the art amongst them, and the French, on their articles of furniture, which we have already noticed, are peculiarly effective; and in the other foreign departments there

are, in one form or other, several contributions deserving of especial notice and study.

In the Swiss department, to the best of our judgment, may be seen the finest productions of carving on wood, however humble may be the objects upon which the art is displayed. The boxes, baskets, &c., &c., in the eastern nave, are singularly delicate in their ornamentation and finish, and are among the choicest specimens of artistic manipulation. We have already noticed the highly-finished carvings of the French, which, more or less, ornament their furniture contributions, and shall simply content ourselves with pointing attention to the specimens scattered over the Zollverein departments, some of which are exceedingly beautiful.

In the English departments the contributions of wood-carving are numerous and diversified, both in character and quality of art. Rogers is in full feather with his birds, and most effectually does he manage to elaborate their external peculiarities; but, with all his excellence as a minute elaborator, he seems deficient in the power of design and arrangement. He hangs up the birds in bundles, apparently in utter contempt of their affinities, either as regards seasons or habits; and you may frequently perceive amongst his groups such an assemblage of the feathered race, as never could occur in nature, nor even in a Whitechapel bird-fancier's order of association—not the best regulated brain for such matters—though superior to our wood-representer of the feathered tribe. Look, for instance, at that heavy-weighted glass frame, hung round with bunches of birds, which are so huddled together that it is difficult to discern the distinction of their kinds; yet the only error that we perceive in this style of grouping is, that the artist is too prolific in his materials, and somewhat deficient in the higher quality of arrangement and selection. Mr. Rogers would do well to remember the old Italian proverb, which runs—*mio caro amico, troppo è troppo*; and too much is too much in every place, whether it be the choking a dog with pudding, or plastering a looking-glass with clots, and groups of dead birds.

There is, however, apart from this defect, only one to equal Rogers in the English school of carving. The birds of J. W. Wallis, of Louth, perhaps excel those of the former, in delicacy of touch, in minute and life-like anatomy; and to such an exquisite degree is the art carried that you may almost imagine that the birds have just been shot—they look so life-like. But we ought to observe that the birds in question are carved upon lime tree, which is peculiarly effective for carving, and that the wood is not stained and darkened, which

materially diminishes the minute relief of the objects carved. In this respect, the birds of J. W. Wallis have an advantage over those of Mr. Rogers.

Touching arrangements of carved frames, the specimens of Messrs. Hanson and Son are deserving of attention, for more reasons than one. Next to the Louth contribution, they are equal in carving to any other in the department, and much beyond them in the disposition and character of the design. The objects are not crowded together like bees in a cluster, people crushing into the opera, or swarms of Irish in a lodging-house, but each one appears appropriately occupied, according to the instincts of its nature. The hen blackbird sitting on its nest, and its mate feeding it with a worm, is one of those natural incidents which a correct taste can touch off in the most felicitous manner. It tells its own tale. The bitterns, too, look as bitterns ought to look, solemn, silent, and isolated, as though they were pursuing their natural avocations; and the objects around the frame are equally occupied according to their respective instincts and habits. This production realises, to our mind, what carving ought to be as applied ornamentally; and this is what Mr. Rogers fails to accomplish, notwithstanding his marvellous power, especially in delineating single objects. In artistic combination he is certainly defective; after all, the one thing needful in decorative ornamentation.

The "Kenilworth Sideboard" is worthy of a passing remark or so, as regards its carved work. In some respects it is the ablest production in the Exhibition; in others, it is somewhat defective. Placing the bears in their present prominent position is what we call a great defect; though it was a popular pastime in the reign of Elizabeth, there is no reason why the brutes should be more prominently represented than the bards—the animal before the spiritual. The first object that leads the eye astray from contemplating the great lights of that age—the greatest lights of the world—Shakespeare, Bacon, Raleigh, &c., is Master Bruin, and you can scarcely restrain your indignation that such an artistic and elaborate production should be marred by so insignificant an error. Yet so it is.

The "Kestrel-hawk and Butcher-bird," by J. Batsford, is somewhat effectively carved, and evinces a good eye for nature; in spirit, character, and design, it is powerfully and truthfully executed. Mr. W. H. Rogers' design for a Royal Cradle is a beautiful specimen of wood carving, and deservedly attracts attention; but there is an "Allegorical Vase," standing near it, by W. Perry, which is a beautiful specimen of wood carving, and may be ranked

amongst the most exquisite productions in the Exhibition. On the group it is stated that the sculptor carved the principal portion of the "Royal Cradle," which bears the name of Rogers, so that it is difficult to assign to each artist his proper and legitimate share, wherever there is a joint production. These objects comprise the choicest specimens of English carving, though there are several others of great merit, and perhaps equally deserving of notice.



CHAPTER XVI.—DESIGNS AND DECORATIONS.

THE ancients were well aware that the perfection of art consisted in combining, with the greatest possible effect, the useful with the pleasing—

"Omne tulit punctum qui miscuit dulci;"

and the studies of our artists and artisans should, therefore, be directed to imparting a useful purpose to articles of ornament, and an ornamental character, to articles of use. The Exhibition cannot fail to prove highly suggestive to them on this important subject. Whatever is *new* to them in the category of the beautiful will at once attract their attention; and on studying the peculiar characteristics of the work, in order to detect the secret by which the effect has been produced, they will, after a series of such observations, easily arrive at the conclusion, that the qualities required in a work which the artist aspires to have ranked in the order of the beautiful, are very simple and few, namely, unity of design, symmetry of parts, and harmonious colouring of the whole. Here he will become master of the entire theory of the *science* of his art, just as the mathematician becomes master of the entire theory of the science of mechanics, as soon as he becomes thoroughly acquainted with the few and simple laws by which nature controls matter and motion. The progress which either of them, from this point, make in practical knowledge, will depend upon their studying all that *has* been achieved or found out in their respective walks, and upon their capacity for improving upon the ideas, or enlarging the discoveries of others.

Without an intimate acquaintance with the sciences of perspective and of the five orders, every design will be obscure in execution. They are the basis and the spirit of the art, and must be carefully studied by every one who would excel in it. The beauty of outline,

which consists in correctness and congruity, is the acme of perfection in any drawing of an article of taste. But this is too frequently overlooked from an ambition to display a luxuriance of taste by a superfluity of ornament, which, while it is detrimental to the effect of the work, also renders it more costly than is advantageous even for the artists themselves.

Practice and perseverance are necessary to make a designer, but, after all, designing is a natural gift, in the same way as painters, poets, and composers are gifted. A youth may be taught to draw, and copy the designs of his instructor, to perfection, but it is a different thing for him to produce an original design.

The mistake of English designers is, that they do not follow out the order or style of design upon which they start. When once they have commenced they do not know when to leave off, but, after having made a good design, persist in encumbering it with fancied improvements, until the first and best idea is completely overlaid. Another misfortune is, that where the combined talents of two artists of different classes are required, they do not study, either by conspiring together to produce an harmonious design of the whole, or by the one adapting his ideas to those of the other, how to produce a *tout-ensemble* which shall at once strike the eye of taste as being perfect for its consistency, without which, though you may produce a stupendous effect, you never can produce a grand one. For instance, the internal appointments and fittings of an apartment should harmonize with its style of decoration; but in this country the upholsterer violates the design of the decorator, who has himself violated the design of the architect. The architect may have erected a mansion in the Gothic style, the decorator gives to the interior an air of the Saracenic, and then the upholsterer fits it up perhaps in the quaint style of the Elizabethan era. And to make the matter worse, perhaps neither of the three has strictly followed his own design, but has been prompted by a meretricious ambition of blending together as many of the leading features of the several styles in his art as possible. Hence foreigners justly say that true elegance is rarely to be met with in this country.

The chief elements of design are correctness and purity of style. To attain correctness each object must have the proper proportion assigned to it in the design which its uses and its nature suggests; and everything deserving the title of beautiful must be invested with an outline of definite character; and lastly, whatever style of ornament is commenced upon, that should be strictly adhered to. For instance, the styles of the *Renaissance* and *Louis XIV.* are both very

chaste and beautiful, if religiously adhered to. In these cases the ornaments should be kept light, and symmetrically placed; but this is scarcely ever done correctly in this country, through a desire to do more than the styles will admit of, and thus overloading them with ornaments which are out of place. Besides what we have said of the harmony which should be preserved between the architecture, decoration, and furniture of a mansion, the harmony of colour should also be remembered. But this is frequently not the case, for you will find an extravagantly luxurious carpet destroying the whole effect of the other decorations, the pattern being much too large for it, the colours not corresponding in tints with the wall, the chairs quite lost upon it, and the curtains made to look insignificant. All this arises from a want of taste, either in the party who gives the order or in the man of business. Both are culpable in this matter. Monopolists, whose only object is to get business, have made great innovations upon all trades of taste; and the passion of our higher classes for foreign productions of former ages, bühls, tapestries, &c., have set every manufacturer to work to corrupt what taste we have, whilst the artist must administer to whatever may be the *penchant* of the employer. Hence the introduction of the *Arabesque* into ordinary rooms, which is quite out of character, and destroys the effect of everything which is placed in connection with it. It is adapted, as was originally intended, for no other purpose than entrance-halls, vestibules, staircases, &c.; and to apply it to other purposes, merely because it is a foreign style, is ridiculous.

In one branch of art—graining on wood—as a rare exception, we almost stand alone. Our perfection in this branch of art has done much to diminish the demand for *marqueterie* work, in which our neighbours excel. But this kind of work partakes too much of minute prettiness, which rather indicates a trifling with good taste than a thorough relish of its broad, elevated, and richest affinities. Moreover, when we know that the magic application of colours will produce the same effect as the minute operations of the hand; nay, still *greater* effect, the cultivated mind then begins to admire what before it was half-disposed to treat with a species of patronising contempt. We are indebted in some measure to Messrs. Moxon and Kershaw for thus stepping beyond the ordinary range of decorative art, whose grained imitations have created a new field of ornamentation. Nor ought we to omit Mr. C. Smith, whose efforts, in the same direction, are equally creditable, and, in some respects, even superior to those just mentioned. The productions of these artisan-artists, to coin an appropriate phrase, sufficiently prove that genius, applied with a right

spirit, even in a comparatively humble walk, can achieve an excellence which has a tendency to open a new path for industry. The contributions of these several decorators to the Exhibition, which combine all the requisites of refined art, furnish sufficient proof that we are by no means deficient in the essential elements to arrive at a high degree of perfection.

Nor ought we to pass by another branch of art, which is assuming a certain kind of importance, namely, sculptured ornament. In the Fine Arts Report of 1836 it was acknowledged that, "designs are as well drawn in this country as on the Continent, but that the French workmen are better educated than the English workmen, of the same class, consequently the French artist has a better chance of getting his designs well executed than the English artist has." Granting this view of the relative condition of ornamental art to have been correct, it has but little application to the present time, the sculptured decorations of the New Houses of Parliament clearly indicating that an important change has taken place in that respect. The labours of Mr. Thomas, acting under Mr. Barry, are fully corroborative of the excellence we have attained.

And here let us do justice to a foreign artist, whose genius and enterprise have been greatly instrumental in diffusing a taste for decorative art amongst us. We allude to Mr. Sang, whose works are an honour to the age, as they mark a new era in the application of the arts to multiplying the comforts and luxuries of social life, and have placed him deservedly amongst the first of the decorative artists of the day. Mr. Sang was a pupil of the celebrated Gaertner, the director of the Royal Academy at Munich, whose knowledge and practice of art, in its highest walks, were universally acknowledged, and from whom, doubtless, he acquired the secret mastery of it which he has made peculiarly his own. The introduction of the Saracenic, or Arabesque, style of decorative art into our clubs, the mansions of our nobility, and other appropriate buildings, marks an improvement in the taste and refinement of the public mind, and will soon remove the too-much-taken-for-granted stigma of our being comparatively indifferent to works of art, and to the diffusion of those works among the mass of the community. It does more—it shows, to use the language of Mr. Sang himself, "that the English have comparatively divested themselves of their Puritan prejudices, and prefer noble forms and glowing colours to unadorned halls, and the Quaker's drab and whitewash."

The Conservative, the Carlton, and the United Service Club-houses; the mansions of the Duke of Hamilton and the Marquis of

Salisbury ; all these structures contain some highly-treasured evidence of the beauty, originality, and richly-diffusive style of art which Mr. Sang has naturalised amongst us, and which admits of such extended application in the decorative branch of industry. Let us honour genius whencesoever it comes, especially when its power is applied to the improvement either of our mental or physical condition ; whether it manifests itself in the heaven-toned strains of an opera, or the magic combinations of colour and design in the decorative arts, it alike improves our social and our moral existence.

Extending our view to more general decorative art, especially in relation to its combining the useful with the beautiful, we are naturally attracted to the works of the first English decorators. In this class we may safely assume that Crace holds the highest position ; though there are others, eminent in their peculiar styles, whose taste is equally conspicuous. Messrs. Crace were the first, we believe, who elevated decoration to a branch of the fine arts ; for they alone, on an extended scale, have introduced order, harmony, and uniformity of character in their works.

Nor ought we to omit the decorative capacity of Morant, whose name must be familiar to every reader of even ordinary acquaintance with objects of taste, and whose contributions to the Exhibition reflect great credit upon English decorative art. Trollope and Son have, likewise, displayed a more than average ability in their specimens of ornamentation of interiors ; so also has Jackson, whose *carton-pierre* fittings-up are at once rich, chaste, and refined in taste.

We shall now direct attention to the several contributions in the Exhibition which have an immediate bearing upon the preceding remarks. The grained panels of Moxon are, perhaps, deserving of the first place. The walnut grain is beautifully and truthfully depicted ; the others, though not so effective, from the nature of the grains not admitting of such depth of colour, are equally worthy of examination. The imitation of in-laid marble is as perfect as it is possible to conceive, but looking at the whole arrangement of the "Drawing-room Decoration"—the panels, the grate, the sculpture of the mantelpiece—we consider it as partaking too much of the pretty and commonplace. The minuteness of the work no one can question, but there is little congruity in it ; the great defect is the want of a single and reigning idea, worked out in all its subordinate parts, to an effective whole. The sculpture is but so-so ; the grate and its appendages are an excellent specimen of metalliferous workmanship. This contribution occupies a very prominent place ; is much noticed and

severely criticised, and, in our humble opinion, is the production of minds limited in their range,—a kind of good journeyman's work, minutely copied to order. In other terms, it is a well-finished specimen of mediocrity.

T. Kershaw has some fine specimens of wood-graining, the first we have seen to equal Moxon's; the oak grain is even finer than that of the latter, and the walnut almost comes up to it. This is a highly pleasing contribution. C. Smith's imitations of marble are fully equal to those just noticed, and when we compare the Arabesque decoration for drawing-rooms, boudoirs, &c., with the preceding, though totally distinct in its features and character, yet it displays what the other is woefully deficient in—originality of conception, unity of purpose, and tastefulness of effect. There is also a panel, painted after the Italian style, by the same contributor, well worthy of notice. M. Sang's specimens of his peculiar art are a study of themselves, especially the interior of Hatfield House, where the true principles of tasteful decoration are displayed to advantage. And a few grained specimens exhibited by W. Holland are highly creditable productions. Bielefeld's ceiling decorations are also deserving of minute examination, from the lightness, and the ornamental character which they display. Mr. Digby Wyatt has several contributions well worthy the study of the rising, and of the experience of the practical, decorator; some of the designs are peculiarly appropriate and effective for their respective purposes.

We must now enter the mediæval-room; let us, gentle reader, tread softly, for we are upon delicate ground. Is not the term *mediæval*, as applied to that secluded room, a slight misnomer? It is strange that there are almost as many objects out of the room as in it, that are strictly mediæval in their character, and several of them much superior to those within. Traverse the foreign departments, where your eye, ever and anon, is encountering some object or other whose style and character bespeak it to belong exclusively to the middle age, as it is conventionally called, still it is not in its appropriate place. And the same remark will apply to several of the English contributions; they, too, ought to have been placed among the select few. Is it that the objects in the Mediæval-room were selected from the mass of that class in the Exhibition simply to illustrate a particular school, or age, of art? If so, we could reconcile ourselves to the exceptional nature of the room; but finding that there are only four exhibitors there, and that all their objects—good, bad, and indifferent, for there is great diver-

sity in quality as well as character—are exclusively arranged there, we can only conclude that the term *medieval* is a misnomer, as applied to that room, and that it would be much more appropriate to call it the Mediequal room. Why mediequal? Simply because it furnishes *equal medii* for the quartetto of exhibitors to display their respective objects to the exclusion of a multitude of others, equally entitled to such a distinction. These four exhibitors have not even the modesty of the Pharisees of old, for the latter were content to occupy the front seats in the synagogue; whereas, these men of brass, of stone, of clay, and of cloth, have monopolised the whole room to themselves, and each has emblazoned his phylactery on its brow, if we may be allowed the metaphor. What must our foreign friends think, after examining the objects in the room, which they have done most minutely? What? That modesty is not to be found in every part of the palace, and that the saucy opponent of the fair goddess, is in rather too showy and prominent a condition in the quarter to which we allude.

The room is too crowded to exhibit to advantage the several objects literally crammed into it. Several of them are exquisite specimens of industrial art, especially those of Hardman, whose peculiar excellence we have described elsewhere. The cups, chalices, and other paraphernalia of the altar, according to the sumptuary arrangement of the Catholic Church, are deserving of minute examination, from the choice and delicate manipulation which they respectively display. The decorative portion of Crace is, in many respects, the happiest we have yet seen of that peculiar class; it unites the essential elements of ecclesiastical ornamentation, aptness of design in form and character, and truthfulness of illustration, as regards time and colour. The stone-work of Myers, and the encaustic tile-work of Minton, however ineffective there, are deserving of careful attention, as they are capable of being applied in so many ways, where architectural decorative art is especially aimed at. We quit this room without the slightest regret.

“Priests, tapers, temples, swim before one’s sight.”

It appears to us better calculated for a junta of Roman ecclesiastics, than for the calm-eyed contemplation of intellectual and refined observers of art.

In the French department there is a beautiful specimen of white and gold panelling in the eastern nave, and on the ground-floor of the south-east section of the palace, there are a great variety of designs, both for manufacturing and for decorative purposes. There you may

wander in a region rich in the conceptions of fancy, guided by a refined taste, and an excellent eye for colour, where

“All are but parts of one harmonious whole.”

The French have furnished us with ample materials even to found a school for decorative purposes.

CHAPTER XVII.—PAINTING ON GLASS.

THE art of painting on glass has hitherto been practised on the continent to a much greater extent than here. In France, in Germany, and in Italy, the painting on glass has been elevated to the first rank of art, and has given employment to the highest order of genius in each of those countries. In this country, on the contrary, with one or two rare exceptions, it has been confined to mere mechanical daubers, destitute of almost every requisite to produce an artistic result.

But within these last few years we have pursued the art with considerable success, and several of our productions at the present time attest the great progress which we have made. It is somewhat singular that the art of painting on glass, which was supposed to have been lost, was partially revived in France by an Englishman; and as this fact is clearly established by our neighbours themselves, it would seem to rebuke the too hasty assumption that our countrymen are deficient in artistic genius and capacity.

“There is a prejudice too readily entertained,” says M. Flachet, “that the secret of painting upon glass has been lost for many ages; therefore we admire the painted windows of our churches, not so much for the beauty and harmony of their colouring, as for the supposed secret of the art which is enveloped in so much mystery. This is an error; the art of painting upon glass, it is true, was not practised in France after the seventeenth century, but it was known and practised in Germany, and especially in England, some time after that period. Some years ago Sèvres exhibited, at one of the Royal Exhibitions, some painted glass, which elicited general admiration; in many respects it was superior to the ancient productions, and certainly inferior to them in no one point. *An English artist*, Mr. Edward Thom, who had been invited to France by M. de Noe, gave a new impulse to this branch of art, and materially established it amongst us. The first experiment of painting on glass by M. Thom was made upon the

windows of the church of Saint Elizabeth : since that period he has been attached to the establishment at Choisy-le-Roi, and has given great extension to the art."

The contributions of stained glass, as it is technically called, are rich, varied, and numerous. Such an exhibition was never made at one time in any age, and from it materials may be gathered to form an opinion of its present condition throughout Europe. Like other branches of art it is undergoing certain changes, and those who practise it are animated with the same feelings and influenced by the same motives that generally obtain, wherever settled forms are recognised and settled interests are threatened. Listening to the different opinions expressed by adepts in the art, and respectfully acknowledging each according to its intrinsic weight, at the same time wedded to no preconceived views on the subject, we are enabled, as we think, to express a fair, unbiased, and independent judgment upon every class of production, whatever may be the peculiar character of its composition. One would imagine that the old spirit of the Aristotelian and Baconian controversy, the question of the "Unities" in dramatic composition, or the style of the Classicists and Romanticists, which caused so violent a controversy in France some twenty years since, had been revived in the present age, to hear the sticklers for the *statu-quo* of things pronounce their anathemas upon this age, and upon that style of painting upon glass. The "classical" school, as they somewhat presumingly designate themselves, denounce every departure from a certain fixed form and style of art, as though they had arrived at perfection, or that the character of the art they so slavishly follow could not be improved. Hence, they insist upon the figures being painted now as they were several centuries ago, simply because they find them in such and such a form on the windows perchance of York Minster, Cologne Cathedral, or some other ecclesiastical structure ; and, if a modern artist presumes to imitate the beautiful art of Greece by robing his figures to the very feet, and by representing the latter in a comely shape, he is immediately decried, and his productions pooh-poohed as not being executed according to the true principles of art. The "classical" (?) school insist upon having the feet of their saints sprawling down, simply because they were originally executed so by incompetent artists, upon the same principle that the China-porcelain manufacturer imitated the crack in the sample cup simply because it was there. This pitiful slavery to paltry trifles denotes one of two things, either that there is incompetency to strike out new ideas, the advancing *pabulum* of the world, or that self-interest is the

main consideration, which may be secured more effectually by first practising a certain thing, and then assuming, asserting, and dogmatically maintaining that it is the only true thing, and that those who deviate from it are ignorant of what they are doing. Let us dispense with dogmatism on a question of this nature, which is in a mere transitory state, and examine fairly and impartially each of the productions before us.

But first, we must premise a few remarks upon the *modus operandi* of glass-staining. In ancient, or mediæval figure painting, the effect of light and shade was produced simply by covering the surface of the glass with a coat of brown, after which the high lights were etched out, then the darker shades were painted in; such parts as were required to be yellow were stained on the back, also the flesh tints, and for this purpose one burning was generally sufficient. This may be termed the primitive mode of glass-staining, to which, it is insisted, we ought rigidly to adhere. The *enamelling* process is a great advance upon the preceding mode, and produces a much more vivid effect, but it can only be attained by a greater amount of time and labour. Nevertheless, the result is well worth the labour and time bestowed upon it, if perfection of painting on glass is to be attained, like painting on other materials. Enamelling requires a greater number of colours, and differs essentially from the process just explained. Orange, red, blue, rose colour, &c., are used to produce the life-like effects of a portrait; these colours being vitrified until they become a portion of the glass on which they are laid, some of them requiring to be burnt four or five times before the painting is complete. The Italians have carried this art a step further, by occasionally substituting portions of opaque instead of translucent glass; and the effect attained is equal, if not superior, to an oil-painting. In all this we see matter of gratulation, as it is in perfect unison with the progressive movement of all artistic pursuits. Change is an inherent law in every thing appertaining to human affairs, however immutable may be the principles by which it is effected. Certain glass-staining *savans*, however, have laid it down as a rule that the art must only be pursued upon one plan; for instance, a stained window ought to be composed of *translucent* materials, and those of an opaque nature must never be used, not even partially. So that a slight—the slightest—portion of an opaque substance, be it glass, in a stained painting would be a desecration of art and a violation of its fundamental rules. Now, what is the object of painting a glass-window? Simply, we apprehend, to portray

some sacred person or scene for the sake of edification. Then, if this can be accomplished by *enamelling*, as it is technically called, or by *opaquing*, if we may be allowed the term, in a more brilliant and effective manner than by the old process, surely it is nothing less than folly, or something worse, to make so silly an outcry against it. "There is nothing new under the sun," said one of the wisest men, and the glass-stainers of this day seem determined to furnish another instance of its truth. Heaven protect an innovator, for he is safe to become the victim of persecution, in one form or other! It always has been so; and, reasoning from the past to the future, we must conclude it always will be. From Demetrius the silver-worker at Ephesus, who thought his "craft" was in danger while Paul preached the truths of Christianity to his countrymen, down to the glass-stainers of the present day, the same note has been uppermost, "what *we* do is right, what *you* are attempting to do must be wrong." We might fill a volume by noting down the incidents which have an immediate bearing upon this arrogant dogma. The great and good in all ages have come under its denunciation—the men of large views, of far-piercing intellect, the mental watch-towers of the world—these generally have been its victims. It is the same *animus*, only on a homeopathic scale, that rebuked Columbus, that imprisoned Galileo, that persecuted Pascal, and that prompted Voltaire to designate the immortal Shakespeare a "literary savage," simply because the sublime productions of the latter were not in unison with his conventional standard. And have not your Gainsboroughs, your Byrons, your Turners, your Etty's, all innovators in the sense the pseudo-classical glass-stainers interpret improvements, passed through precisely the same phases, of first being sneered at, and of ultimately triumphing over all difficulties which prejudice, ignorance, and self-interest, the most powerful of all feelings, placed in their way? And so it will be with the progressive glass-stainers.

With the exception of two or three productions the French have, certainly, the finest specimens of glass-staining in the Exhibition. Here may be studied the different phases through which the art has passed from the thirteenth century down to our own time. The primitive artist must have struggled hard to overcome the clumsy leaden frames, which reduced him to so scanty a surface of illustration; while, in the present day, more ample and effective means are supplied, by the inventive resources of industry, for the exercise of the art. The science of blending in harmony a few primaries was comparatively easy, but the difficulty now is how to neutralize one

colour, or shade of colour, by another; and to effect this the artist is necessarily compelled to sacrifice the conventional treatment which formerly might be highly useful and advantageous to perfecting the art. The models of this or that century, therefore, are comparatively valueless, and it only raises a smile of pity or contempt when we hear this or that production censured simply because it may chance to differ from this or that assumed standard.

The productions of M. Lusson are, perhaps, entitled to the first notice, from the merit which they display. His imitation of a lancet window of the thirteenth century, in the *Sainte Chapelle*, is an effective illustration of the art of that period. The figure of St. Symphorosa, in the Renaissance style, is equally effective; but we prefer the secular subjects of this artist. The two lovers telling their tale to an old shepherd is after the pastoral scenery of Louis the Fourteenth's time, when the country swains were dressed out in the style of the court, and simply acted their parts as though it were a genteel comedy. Still, the effect of the scenery, the character of the figures, and the variety of the shades of colour have an artistic appearance on glass. In another illustration of the same artist we perceive the gradual departure from the old stereotyped form of glass-staining; here we have all the beauty of the vineyard depicted, which, with the foliage, birds, and flowers, and the variety of colour required to work these objects out, presents a most charming effect. M. Lusson has, also, attempted the enamel, but it will not compare with that of Baillie, which we shall shortly notice. M. Thibaud has given us a vigorous representation of an old friar, with a skull in his hand, which, though coarse in some respects, is by no means deficient in the true quality of art. The "Last Supper," by the same artist, has a little too much of the French class of sentiment to suit our taste; nevertheless it will bear inspection as a work of art. The enamel of "Judith and Holofernes" is another exemplification that our neighbours are in arrear of us in this branch of the art. The figures and surrounding objects appear immersed in a sort of murky, brick-dust flame, which materially detracts from the otherwise correct imitation of the original. M. Thevenot has a "St. Bernard" and the "Virgin and Child," which are somewhat effectively designed, though unequal in colouring; and the "Scene of the First Paschal Sacrifice" is a bold composition, and very truthfully worked out. The "Burgomaster" of Maréchal and Guynon is one of the most effective paintings on glass we ever saw, though a little too much brought forward, which imparts to it an intrusive air. In

every other respect it is an able performance. The large subject by the same artist is a valuable contribution : it is in the cartoon style of drawing, and depicts an affecting incident recorded in history of Charles Borromeo during the plague in Milan. That good priest and excellent citizen is administering the sacrament to a plague-stricken and dying man, while some of his attendants around are shrinking, apparently with dismay, from the poor miserable victim. The position of the leading figure and the expression of the dying man are powerfully worked out, as far as the drawing is concerned, but we cannot say quite so much for the colouring. Lafaye has an effective window filled with medallions ; and M. Fouqué's embossed glass, illustrative of modern art, has a soft and pleasing effect. M. Capronniere of Brussels has a number of cartoons, which fairly represent the state of glass-staining in Belgium. They are mostly effective performances. M. Geyling, of Vienna, has some picturesque and graceful landscapes and buildings in the enamel style of the art ; but the heroine of *Il promessi sposi*, looking out of window, is the most effective painting in the whole gallery of its class. The colours are singularly well laid in, and shaded off, even to the minutest portion of the dress. As a specimen of portraiture on glass it is striking and artistic. Descending to the octagon-room, we are charmed with some exquisite paintings on glass ; that of M. Kellner of Nuremberg being especially attractive. Wetsell's productions will also amply repay a careful study of their character and execution ; and Hodder of Wurtemberg, in his enamel contribution, will also receive due commendation.

We now arrive at what we deem the masterpiece in the Exhibition—the “Dante Window,” by Bertini of Milan. The style, the character, the exquisite mode of colouring, the subject chosen for illustration, and the masterly manner in which it is executed, point it out as an isolated, highly intellectual, and original performance. We have already referred to this painting in our preliminary remarks, and have endeavoured to point out the weakness or folly, or both combined, in attempting to ignore such a production, simply because it has not been executed upon what are technically called recognized principles. When Edmund Kean first appeared on the stage, the old *habitués* of the Kemble school were utterly dismayed ; the originality, the fire, and the unrestrained ebullitions of the youthful tragedian, sorely disconcerted their settled habits of thought, and the then recognized mode of acting ; and many of the inveterate sticklers for set forms and stereotyped usages would never acknowledge that Kean could act at

all. The world, however, thought otherwise, and applauded him to the top of his bent, even in his declining days. Signor Bertini must expect to meet with similar treatment; but he has stuff within him that will triumph over a whole host of such objectors. The figure of Dante, in the middle of the window, is poetically conceived, and effectively worked out; the colour of his dress forming a brilliant centre, which irradiates the whole picture. The expression and attitudes of the females, on either side of the central figure, are in perfect unison with the character of the conception, and effectually illustrate its subordinate parts. The shades of green, and richly-toned yellow of their garments, contrast most exquisitely with the ruby and purple which predominate in the dress of the poet, and the colouring of the minor portions of the painting are in perfect harmony with the general design. To those who are conversant with the great poem of Dante it will prove a high treat, irrespective of their love of art, and its felicitous illustration; and even upon the ordinary spectator, it cannot fail to have a pleasing and highly instructive effect.

Returning to the English contributions, which are numerous, and in some few instances effective, we must confess that we are inferior to the French in this branch of art. The Messrs. Pugin and Hardman's productions evince a careful handling, but a somewhat slavish adherence to the prescribed formulæ of art, which we have just denounced. In colour, composition, and accuracy of detail, they may be said to occupy the first place amongst the English school, and, apart from the objections stated, are a highly creditable contribution to the Exhibition.

Here we may as well remark, that France stands upon more advantageous ground than we do, inasmuch that she has only sent the picked and carefully-culled productions of her artists, the contribution having been decided by several committees of selection who exercised the utmost vigilance, in order that the reputation of her art should not suffer any diminution; while in this country, on the contrary, there has been a regular omnium-gatherum without order, taste, or selection, and the only surprise is that we appear so advantageous as we do.

The next exhibitor in quantity, if not in quality, is Mr. Wailes of Newcastle; but we cannot discover in any one of his productions anything beyond the mere copyism of the ordinary school, even to its very worst defects. The Saviour or five-light window is, perhaps, the most effective amongst his productions; in colour it is not so bad, but in drawing it is out of proportion, whether we look at the

principal figure or the four subordinate ones. The Messrs. O'Connor's productions are not quite on a par with those just noticed; in drawing, and especially in colouring, they are generally but commonplace both in tone and character. The Messrs. Chance occupy somewhat high ground. In colour, in composition, and in finish, they are assuredly the best productions of the general class of stained glass; in addition to which they do not evince those trammelled features which so peculiarly characterise almost all the others, still there is a careful attention to the precedents of art, whenever they are found practicable. The ruby diaper pattern, covered with a trellis of vines, has a beautiful effect; and the figures of St. Paul and St. Peter will bear comparison with the best drawings in Messrs. Pugin's collection. The lace-work decorative glass of these spirited manufacturers is also singularly attractive, and may be applied to numerous purposes of an ornamental nature. The group of flowers by Messrs. Hetley is a spirited composition, and deservedly attracts attention; and Messrs. Hall and Son, of Bristol, exhibit some rich specimens of cut glass, which show that we have made, and are making, great progress in the art. We had almost forgotten the window of J. Gibson, of Newcastle, which, apart from a defect or so, is one of the ablest productions in the space: we allude to the representation of the *Agnus Dei*. Had the drawing been more perfect, it would have proved an effective performance.

The enamelled production of E. Baillie we consider to stand in the same relation to the English contributions, as the "Dante Window" does to the foreign; it far surpasses them all. This contributor has carried the art of decorating, or staining, glass to the highest point yet attained in this country, or, if we make one single exception, even on the Continent. Compared with surrounding productions, the "Shakspeare and Queen Elizabeth" appears like a brilliant amongst diamonds, it is so far beyond them in depth and richness of colouring. The objection to this painting is, that the light is made to appear as though it were thrown upon the glass from within, in lieu of coming from without; or, in other terms, that the background is a reflecting or opaque surface, and not one capable of transmitting light. Another objection made to it is in this form—that if it chance to be broken, there is no possibility of restoring it; as though it were in large pieces, unlike other productions, and were subject to more contingencies of a destructive tendency than other windows. These objections, it is evident, rather spring from a disappointed than from a critical and fastidious source; and the first may be dis-

posed of, according to our notion of the subject, by the fact that what is lost by departure from the assumed rules of glass-staining-translucency, is gained four-fold in effect, which is infinitely more to the purpose, as regards the quality and purport of the art. Again, as regards the fragility of the production. This objection is easily removed, and could only be assumed to introduce a disparaging remark or so; the painting, as we are instructed, is composed of eighty separate pieces of glass, in an area of thirty-four superficial square feet, and that the largest piece in the composition does not exceed two feet superficial, and that is of stout sheet glass, twenty-six ounces to the foot. In this respect, then, it is absolutely superior to most other productions: that objection, therefore, must fall to the ground. Besides, the purport of selecting a somewhat larger piece of glass for one part of the picture was to obviate the joining of the copper frame, which would have interfered with the effect, when it was peculiarly desirable that it should not. The evil effect of the lead-joinings is but too visible in the Milan production, and mars materially its fine effect, in more than one instance. Having removed, as we believe, the objections to the painting, we shall devote a few remarks to the detail of its composition, which we unbiassedly admire.

Our immortal dramatist is reading one of his works to Queen Elizabeth, who is seated in a chair of state, attended by certain ladies of her court, dressed in the costume of the age. Besides Shakspeare, there is Sir W. Raleigh and the Earl of Southampton, "fit audience and few" for such an occasion. The grouping of the figures is exceedingly well managed. The Queen is attired in a dress of white satin, with a crimson stomacher, studded with pearls; and she wears her usual head-dress. Sir W. Raleigh and Shakspeare wear the slashed doublet and hose of the day, and the latter has also a small cloak of crimson velvet. Considerable effect is given to the draperies of the most prominent figures, every fold being painted with obvious accuracy; but the great beauty in this part of the painting is, that the different materials are represented so faithfully, the velvet and satin textures appearing as though you could distinguish them by touch. The general effect is indeed irresistible, and of itself is sufficient to characterise the art as one of the utmost utility of application. Every part of the picture is distinguished more or less for the purity of the colouring, and great judgment has been exercised in making it harmonise with the general distribution of light and shade. Some of the colours are put in at once with glass of the required

colour, but where a variety or combination occurs, these have been painted on the glass first, and then burnt in. The pattern of the drapery is managed by the use of fluoric acid, which etches away the coloured surface, leaving it either blank for the reception of another colour, or else a lighter tint of the original. By painting partly in front and partly at the back of the glass, the shadows can be represented with the greatest facility and precision. The transmission of the light, and the effect of the thickness of the glass, contributes much to modulate the intensity of the colouring. This is, doubtless, the cause of the wonderfully correct imitations of the satin and the velvet, both of which appear to great effect. Two medals, according to a notice attached to the painting, were given to this artist by the Society of Arts for enamelling on glass, one as early as 1833, the other in 1837. We repeat, with all respectful deference to pseudo-judges in these matters, that the "Shakspeare reading to Queen Elizabeth" is the most effective production by far in the English collection, and will bear in many respects a severe comparison with that of Signor Bertini, which must be acknowledged as a work of original conception, and of masterly execution.

CHAPTER XVIII.—PAPER-STAINING AND PAPER-HANGINGS.

THE art of paper-staining and paper-hanging has now become one of the most interesting and useful branches of industry, whether viewed in relation to the amount of skilled labour and capital employed, or the elegance, refinement, and convenience which it supplies to our social wants. Paper-hangings are of comparatively modern date, being originally manufactured as a cheap imitation of the rich stuffs and tapestries used by the wealthy and great in the coverings of the walls and wainscotings of their apartments. The French, we believe, were the first to bring them into general use.

Paper-hangings may be divided, for convenience sake, into three branches—the flock, the metal, and the coloured. Each of these appears to have been invented at different times, in imitation of a material then much in vogue, as, for instance, the flock to imitate the tapestries, the coloured to imitate the gilt leather which the Spaniard's brought into general use, and, lastly, the metal, which was intended as an economical substitute for painted decorations. Beckman in his

history of inventions, states that flock paper was first manufactured in England by one Jerome Lanyer, in the reign of Charles I.; the *Dictionary of Commerce*, of 1723, under the head of *dominoterie*, or marble-paper, such as is used by the old bookbinders, gives a minute description of the mode of printing the latter, and cites statutes to regulate the industry, dated 1586, in which rules are given as to what kind of presses are to be used by the *dominotiers*, and prohibiting them, under heavy penalties, from printing with types. Here we catch a glimpse of the keen-eyed vigilance of the Romish church, which dreaded the progress of the Reformation, then spreading fast and far into every region of human thought. From the preceding relation, it is fair to infer that block-printing was first practiced in France.

It is evident that the art of paper-staining and paper-hanging was carried on in this country to a considerable extent, from the time of Charles I. down to Queen Anne; and its subsequent history may be traced, with comparative accuracy, by the decorations adopted by the nobility and gentry, several of which are still preserved, either on the walls of their apartments, or in the works devoted to the illustration of their mansions. In the year 1712, the tenth of Anne, a duty of 1 $\frac{3}{4}$ d. per square yard was imposed on the manufacture of stained-paper; and some of the flock-paper, one hundred years old, resembles in every respect, the modern material. The art of flocking, in fact, was disused, and almost lost, during a period of twenty years, and revived only about sixty years ago.

There were formerly three modes in which paper-hangings were manufactured—by printing the outline with blocks and then colouring by hand, by stenciling, and by blocks alone. The first of these methods is that adopted by the *dominotiers*. The second, stenciling, is performed by cutting out either on paper, leather, or other materials, the pattern to be represented, and then placing this on the proposed ground and brushing it over with the proper colour. This mode gives an imperfect outline, and is seldom used, except by plasterers, to ornament coloured walls. The third is the mode now almost universally adopted, whereby every colour is applied by a separate block, according to the tints and shadows intended to be represented: but within the last two years a great improvement has been effected in this mode of paper-staining, by using several colours on one block, which is a great saving both in labour and cost, besides producing a more effective article at the same price. The Messrs. Hinchliffe, we believe, were the first to introduce this improvement, and so successfully have they followed it up, that, on some occasions,

they use as many as twenty-five colours on a single block, the effect of which, upon the labour-cost of the article, may easily be conceived.

We shall pass over the minutiae of working practically the modes in vogue at the present day, as it would occupy too much of our space, however interesting it might prove in detail. Suffice it, for our purpose, to observe that the French have long excelled us in this branch of industry, through the agency of their highly cultivated taste and practical knowledge of chemistry; and it is only since the tariff of the lamented statesman whose name it bears, that their productions were admitted to this country. A duty is now imposed upon foreign stained paper, as it is technically called; yet, in spite of that impost, it continues to find its way into our markets, notwithstanding one or two disadvantages, such as the lengths, widths, and the difficulty of repeating the pattern, if required, which are incidental to its importation. France is indebted to her fine taste and her practical knowledge of art, for the supremacy which she maintains in this department of industry, as our manufacturers know well to their cost, for there is scarcely a single English designer that can devise a pattern fit for working order, if it happen to involve a slight complication of colour and figure. The reason is obvious; our artists have never been brought up to the pursuit, and seem almost out of their place, when their fancy and imagination is "cribbed, cabined, and confined" within the circumscribed limits of a manufactory or a workshop. There is no want of talent or genius amongst us; but there is a great and lamentable want of a healthy discipline to give that genius and talent a practical direction. Hence our manufacturers are compelled to employ foreign artists, and are dependent for success upon the productions of those who might, otherwise, be simply borrowers from us, as we are borrowers from them. This mutual indebtedness, were our practical artists on a par with those of France, would materially enrich the productions of each, and not leave us the humble imitators of a style that, in many instances, is anything but congenial with our tastes and desires.

The contributions to the Exhibition, in this branch of industry, are peculiarly rich and diversified; and, as was to be expected, France, if we may be allowed such a metaphor, is the radiant star on the horizon. The specimens of M. Delicourt, Mader Frere, and Genoux, leave our manufacturers at a considerable distance, as regards the highest class of paper-staining. The large panel, illustrating a stag-hunt, is really a fine work of art, both as to colour and

design; and the beautiful panels on each side of it, with their exquisite borderings, present those rare feats in block-printing that it is scarcely possible to conceive. If richness of fancy, and glowing harmonious colours be your delight, just walk up to the gallery above these performances, and you will there find a vivid illustration of both, in the large pannel pattern, representing the several quarters of the civilized globe, as though the fancy of the artist had blended them imperceptibly together, similar to a series of dissolving views. The practised eye, even, could scarcely anticipate such an effect. And the red flocks of Mader Frere, to descend to the ordinary and useful, which derives its best spirit from the productions just mentioned, will naturally attract attention, their colour is so singularly bright, deep, and vivid; so also will the delicate fawn shades of Genoux, which are remarkable for their quiet and simple beauty. While on designs and designers, take care to inspect the specimens of Juret and Laroche, where you will find a new world of art, in which the imagination may wander with almost infinite and inexhaustible delight, yet everything, apparently, is under the most subdued and disciplined direction. Therein lies the perfection of art.

The papers in the Russian contribution are more curious than effective in style and execution; in almost every respect they are inferior to those from Austria, and much below those of Belgium, France, and England. America, we think, is about upon a par with Russia in this respect. The specimens of Spoerlin and Co., of Vienna, clearly show that we have nothing to apprehend from that quarter; these productions are poor in quality, narrow in width, and inferior in the character of their colouring. Nor is Belgium so effective as she was wont to be some ten or twelve years ago, in paper-staining; the majority of her productions are heavy imitations of the French. Zuber and Co., of Rixheim, have sent an excellent panel specimen in the finest style of the French; and a series of papers ranged below it, of the same manufacture, are well worthy of attention, especially the blue and white. The only objection to these specimens is the width of the paper; they are so very narrow, as compared to the general class of productions.

There are, likewise, some good specimens of ordinary papers from France, which are deserving of notice, but they are principally to be found in the contributions of our first-class decorators, who have stimulated the former in order to rival the productions of their own countrymen. This, of course, is a legitimate trick of trade, though mildly designated as fair competition; to this there can be little

objection, as it must naturally stimulate the productive energies of our manufacturers. The latter, however, must endeavour to equal, or to beat, the foreigner, then they will find the orders transferred to themselves, instead of being sent abroad, which involves many inconvenient contingencies. Besides, the *bona fide* producer will find that the public will not depend so implicitly upon the capitalist, or decorator, as he is technically called, and that the lion's share of the profit, which the latter has somehow or other contrived to appropriate to himself, must naturally revert to its legitimate claimant. A decorator, under the present conventional state of things, has the manufacturer completely under his thumb, and as a consequence he is screwed down in price, his energies become relaxed, and he is obliged to content himself with a mere hand-to-mouth existence, for he feels that he is almost daily crucified, by the decorator playing off the foreigner against him. The only way to emancipate himself from this uncomfortable and unprofitable thralldom, is to improve in his productive power, and his present annoying depressor will then be converted into a useful and profitable adjunct.

We now turn to the English contributions, which may be designated as excellent, embracing, as they do, the intermediate and lower qualities of paper-staining, both of which enter largely into general consumption. But it is the intermediate quality, which involves a considerable amount of artistic skill, expert manipulation, and a certain cultivated taste, that demands a more attentive notice; the lower quality depending in some measure upon mechanical power, which may be brought into play, without any great attention to the qualities just enumerated. And here we have considerable difficulty. The several manufacturers of stained paper are pretty nearly on a par in point of excellence, as regards the highest class of printing. There is but little more than a shade of difference between them, and that shade is not permanently in one place, but shifts about, according as one or other happens to make a lucky hit, either in the design or colouring of a new production. Nevertheless, each has a distinct character of production, which requires to be minutely examined before we can safely determine their relative merits. Relying upon their contributions to the Exhibition, we should unhesitatingly say that Messrs. Hinchliff and Co. bear away the palm of excellence, though Messrs. Turner, Woollams, and Townshend, respectively run them, and each other also, most desperately hard. Could we reduce our description of the relative merits of these paper-stainers to that of a race on the Derby-day, we should say that the three last-men-

tioned firms had left the ruck of competitors, had come right up to Messrs. Hinchliff, and were running them awfully hard, but that the latter would win by a distance at the post. But to individualize as well as we are able. Messrs. Turner and William's specimens are characteristic of their general productions—good work, correct taste, and purely English ideas. Messrs. Townshend and Parker present the opposite contrast, as their rich and somewhat gaudy, gold-mixed patterns, though effective, are wanting in that peculiar quality of subdued refinement which good taste imparts, even to gorgeous combinations of colour. Messrs. Woollams are somewhat betwixt the two, occasionally reminding us of the correct feeling of the one, and the gushing and somewhat redundant taste of the other. In all of these manufacturers there is good work, excellent material, and, on the whole, a rather superiorly-conditioned taste and fancy, but not one to equal the French in the latter respect. The Messrs. Hinchliff appear to come the nearest to our neighbours in the general run of their productions, and display a little more diversity in their fancy and taste than the trio just mentioned. The three panels, copied from the French, which, by the bye, need not have been stated, seeing that almost every other specimen in the Exhibition is either a copy, or modification of a copy, from that source, are a favourable specimen of that class of work, although there are better in the Exhibition, which we shall duly notice. And here let us remark upon the bad light for a fair exposition of paper-staining, which more or less prevails throughout those parts of the palace appropriated to their reception. These contributions are so scattered over the building that it is difficult to catch the precise character of each, however minutely you examine them; and the difficulty is fearfully augmented when you have to walk a quarter of a mile from one specimen to another, with a thousand interesting objects between, every moment arresting your attention, and confusing the comparative powers of your brain. Imagine, gentle reader, a walk from the centre of the south gallery, at the starting point from the extreme back, to the north-east gallery at the extreme end, and then you will have an idea of the space to be traversed, irrespective of the countless obstructions which materially lengthen it, before you are enabled to critically compare one panel of paper-staining with another. This is too much to expect from poor human nature. It would require the velocity of movement which Napoleon ascribed to the eagle when he was typifying his marvellous return from Elba to Paris. "The Imperial eagle," said that singular being, "flew from steeple to steeple,

until it alighted on the towers of Notre-Dame." We want a similar power to this; we can't obtain it,—so the less said about it the better. *Necessitas non habet legem*; and if necessity really has no legs, she must stump along as well as she possibly can. Well, now you are fairly before the best show of English papers in the Exhibition. Let us examine them minutely. Here you have specimens of the highest order of decoration, both as to design and execution. Observe that white damask ground with its Italian pilasters and border; the former is an effective base to the latter. Minutely inspect the drawing, the colouring, and the general character of the design; all is in good keeping, and indicates that the designer's eye must have been nicely attuned to the finest elements of his art. The border and pilasters of that panel have no equal in the English contributions, and are not surpassed by the French. The pearly-grey ground of the pilasters affords a beautiful relief to the high-toned yet subdued illustrations, which are strictly after the Italian school of art; and the medallions representing the seasons are tasteful additions which render the variety at once harmonious and effective. The division of the panel into three compartments has broken the monotony of the centre, and displays to greater advantage the exquisite ornamentation of the base and pilasters. This, we repeat, is the *chef d'œuvre* of English paper-staining in the Exhibition. The panel with the richly coloured border, is also a good specimen of the best condition of the art in this country. The border itself is a study, where the colourist may luxuriate in the finest combinations of his art. The rose, the dahlia, the China aster, with other finely-tinted fragments of Flora's garland, are there blended in harmonious and wreathed beauty, as it were to show the rich variety which nature affords for the artistic industry of man. These panels are the contribution of Messrs. Hinchliff and Co. Let us extend our view to the panels of the same firm, hanging in the north-east division. Here again we have specimens of the different styles of decoration; the further one is called Italian, and there is great scope, you will perceive, from the strong contrast of the colours, either for good or for bad taste. A really good taste delights in this class of decoration, a doubtful one eschews it, and a really bad one has an utter horror of it. The reason is simple enough—there is no chance of concealing the deformity of an imperfect and incorrect taste in the same way as though it were employed on an undefined, meltaway, bizarre kind of design, where the ideas are in a similar condition to the zig-zag dance of a Hottentot, in which every measured movement is set at utter defiance. Now, the artist who designed that

panel had a fine eye for colouring, or in other terms, his mind was nicely attuned to that kind of work. The next is a neat centre, intended, doubtless, to exhibit the rich border which surrounds it; and the exhibition is effective, for there is no violation, to our minds at least, of the harmony of colouring, neither in the detail of the border nor the centre. Pass your eye on to the other, and if you have a delicate taste you will admire that silvery centre. The only fault we can possibly find with it is, that the room with which it is decorated should be treated something like Dr. Kitchner's cucumber. "First pepper it, then salt it, after that oil and vinegar it, and then—throw it away," that worthy was in the habit of observing, whenever the dainty vegetable was brought under his notice. And we may say, humble imitators as we are, touching that delicate paper, first decorate your walls with it, furnish the room with corresponding objects, take one long look at it, and then—lock up the door, exclude the common air, for nothing ought to come "between the wind and its nobility." These three panels are equally creditable to Messrs. Hinchliff.

Farther on we have another order of decoration in an Arabesque panel, the very antipodes of the preceding; it is rich, it is gaudy, and just calculated to kill every object in the room upon whose walls it may chance to appear. Nevertheless, that kind of decoration is suitable for certain situations, and where it suits, it is most effective. The quality of the panel in question appears excellently finished. Next to this is a very fine and rich green flock centre, with a border, although itself an excellent production, totally out of place. A more outrageous perpetration of mischief we have seldom seen, for both are good, but not exactly suitable for each other's company. The same contributor has another panel after the delicate order of decoration, which is good in parts, but not nicely arranged as a whole. There are the materials, but they are not in their right places; a little more discipline of mind, and that matter would soon be arranged. Look at the combination of blue, drab, and pearl-white in the panel of Hinchliff; there all is harmony of tone, which adds a beauty to the delicacy of the design. These three panels bear the name of Woollams and Co., who rank high, and deservedly so, as paper-stainers. In another direction, and at some distance off, there are three fine specimens of decorative papers; two are flock, one of them brown and green admirably blended in shade, and would appear most effective in a room—rich, but subdued to the tone of the furniture, assuming the latter to be a dark-grained wood. The red flock is an excellent spe-

cimen of English manufacture, and only inferior to one in the French department, already described. There is also a rich and tasteful border round the third panel, which is a study of itself. These panels are good, neat, and substantial specimens of the English taste, but deficient in the fancy and fine touch of the French. They are the productions of Mr. H. Turner, of Pimlico. Descending to the basement-floor you will find the contribution of Messrs. Townshend and Parker, which, upon examination, will justify our preceding remark upon their class of productions—rich, gaudy, and redundant in gold and colour; still, they are effective, and come very near, if not quite, to the recognised standard of correct taste. Returning to the gallery, and carefully inspecting the isolated contributions, your eye is attracted by a large surface of oak statuary panelling, if such an epithet will convey a description of Mr. C. Norwood's specimen. For certain kinds of decoration this style will be found effective; the durability of the paper, in this instance, must be looked to, before its artistic merits, which are by no means below par. The oak panelling productions of R. Horne are the best we have yet seen of that class of paper-staining; and the marble imitations of W. Cooze are equally entitled to notice. While in this department let us state that we miss Mr. Archer, whose productions were originally in the Exhibition, and some of which were more than ordinarily effective.

We now approach the machine section of paper-staining, in which we have no Continental rivals; our superiority, in this respect, must be acknowledged at once. But there is a great diversity of qualities amongst our own manufacturers. Potter has a great variety in his contribution, as regards colours, but not so much so as regards quality. This class of paper combines two opposite sections—one aiming at cheapness and showiness, the other at quality and effective colouring. The first is naturally ragged in texture when exposed to the slightest wear and tear, the colours almost crumbling off, and the whole production scarcely worth the labour expended upon its decorative application. The second is almost equal to block-printing, the colours are more carefully mixed, and the quality of the paper studiously attended to: hence it becomes a highly useful paper for certain purposes, its economy, and its effective appearance, being its great recommendation. Messrs. Potter, judging by their specimens, may be placed at the head of the first-class, and their merit, if merit it be, consists in printing paper by millions of yards, and dabbing on colours that are almost *off* before they are *on*. Like our friend, the Jew, they appear to look too exclusively to the sale of the article; but, to ensure continuance, a

little attention ought to be paid to the quality also. Heyward and Higginbottom, on the contrary, seem to observe the essential conditions, for their specimens have more the appearance of block, than machine printing. Run your eye along those varied specimens in the upper gallery, and touch them with the tip of your finger, moistened with your tongue, you will soon find that the colours are not of such a fleeting, non-adhesive nature as those on the papers down stairs, of the same class of manufacture. Look again at the quality of the paper itself, at the depth and shade of colour, at the character of the designs, and you will, with your practical perception, at once conclude that there is a very distinct difference between them. The Messrs. Heywood are now enabled to print fourteen colours, with fourteen different cylinders, on the same paper; the utmost hitherto attained has been ten colours with as many separate cylinders. The superiority of this firm, which stands alone in machine paper-printing, arises, in some measure, from paying great attention to mixing their colours, to the quality of the paper used, and to the careful process of cooling the paper when printed, a point of considerable importance in machine work, as the colour is apt to become non-adhesive when too sudden a change is effected on the surface which receives it. These paper-stainers, then, stand as high in machine work as Messrs. Hinchliff do in the highest class of block-printing.

While on the subject of decorative papers, let us not omit to direct attention to Clarke's "Seamless Cloth Flock Decoration," which is manufactured from the woollen flocks obtained in the cloth finishing process. The effect of this new application is novel and striking; its convenience and economy have yet to be tested. It can be manufactured on the wall of the apartment, and extended over any given space without seam, joining, or repetition, which are unavoidable in stained papers. We point it out because we consider it one of those efforts to effect a change, which, although not ultimately successful, yet are the means to direct the way to attain success.

CHAPTER XIX.—CABINET-WORK.

THE contributions, both from the continent and from our own manufacturers, are singularly rich and diversified in this branch of industry. France, Austria, Spain, Germany, Belgium, and the United

States, have furnished us with the finest specimens of their several excellence in cabinet-making, in each of which may be traced the mechanical skill and prevailing taste of the present time. France is light, elegant, yet convenient, in the forms of her objects; Austria is heavy, lugubrious, and colossal, with one or two exceptions; America is smart, original, and adaptive; while Spain has sent us a table, the wonder of the world of inlayers and marqueterie-workers. Nor ought we to omit the equally surprising contributions from the Eternal City, whose mosaic work is one of the marvels of the Exhibition. But before we go into details, let us indulge in a few preliminary observations, which will supply the means of judging of our own position and that of our continental competitors.

It must be considered that we possess an important advantage over the foreigner in the command of the raw material.

"One important fact," says M. Flachet, speaking of France and her articles of cabinet-work in the Exposition of 1844, "must be noticed—the great inferiority of our indigenous woods. We see this in many objects of furniture, while mahogany and other tropical woods, which are more largely used this year than we ever before observed, clearly proves the fact. If we except the walnut-tree, with its beautiful grains, our wood is deficient in that vivacity of colours, that variety of texture, that richness of fibre, which the woods of a hot climate present; and time, instead of improving its condition, only gives it a dull, cold, grey, and leaden appearance. Moreover, exotic woods improve by keeping; ours, on the contrary, lose their beauty. Here, then, we have a branch of industry in which the foreigner is decidedly superior to us—in the command of the raw material; and, being compelled by the inferiority of our own produce to import three millions of kilograms of exotic wood to supply our industry, the question naturally arises, can we do so upon the same terms as the foreigner? . . . A comparison, therefore, may be made between the relative extent and importance of the English and French cabinet-work, by estimating the respective imports of mahogany into the two countries. In a single commercial establishment, the West India Docks, we have seen fifteen thousand logs of mahogany at the same time, which is about double the importation of France in a single year. These logs generally are much larger in dimension than those which are transported to Paris by the navigation of the Seine, some of them measuring even 2m. 50c. in diameter. In England, moreover, they have powerful machinery for disembarking the mahogany and placing it under shelter; by this means they obtain two advantages of

which we are deficient, first, the wood is not exposed to the atmosphere for a long period, which materially deteriorates its surface and produces a loss, and, secondly, there is a great economy in the conveyance, which is a considerable per-centage upon the consumption."

There is likewise a peculiarity in the relative condition of French and English cabinet-workers, which is deserving of notice, as it materially effects the interests of both. We allude to the small cabinet-makers of Paris, whose number is disproportionately large, in relation to the whole body employed. Of four thousand cabinet-workers in Paris there are upwards of fifteen hundred working on their own account, with the occasional help of a single apprentice, who frequently follows the same example. These petty manufacturers buy their materials at a great disadvantage, and inundate the market with dear, ill-made, and showy objects of furniture, which are knocked up for a mere hand-to-mouth existence. Such a segregation of labour has, in some measure, its origin in political causes, and may be traced to that love of pseudo-independence, the blind day-dream of so large a portion of the French working classes. The latter imagine that the capitalist, as they term the master-employer, is their enemy; that he is always devising plans to rob them of their hard earnings; that, in short, he is, and must naturally be, their antagonist. This fatal delusion has been widely spread amongst the working classes, and has given rise to many of those frightful outbreaks which invariably terminate in their especial disadvantage. But let us hear what M. Flachet says on the effects of this fatal delusion:—

"The larger portion of these petty makers," he observes, "are ill-provided with tools, and purchase their materials in detail; or, in other terms, pay dearly for everything they use. They make a piece of furniture, then run with it to a cheap dealer, who generally beats down the price, and gets it at his own valuation. It is quite common to see these workmen trotting about the Faubourg St. Antoine, and elsewhere, with their weekly work, first to one shop, then to another, in order to dispose of it to the best advantage, and if they fail in meeting with a purchaser, there is no alternative but the Mont-de-Piété. What progress, therefore, can our working-men make under such a system?"

The same evil obtains in this country, but only to a limited extent, as compared to France. The workman who pursues such an unprofitable labour here, is either a drunkard, or a lazy and worthless fellow, whom no master will employ at regular work; while, on the contrary, the French workmen are led astray by a political delusion rather than

by bad habits, though the latter are by no means infrequent amongst them.

The truthfulness of English work, which more or less characterizes our several branches of industry, is particularly manifested in cabinet-work; and not only the truthfulness of execution, but, in some instances, the beauty of design, and the excellent quality of the material, are equally predominant, when compared with foreign productions. In order to manufacture first-class furniture, it is necessary to use the best quality of wood, which can only be secured by purchasing largely, and allowing sufficient time for its becoming thoroughly seasoned. There is one thing especially to be observed by first-rate cabinet-makers, namely, to eschew all steaming and other artificial processes, to produce a premature and supposed natural effect in the wood, which are sure to tell their tale in the long run. And here again we are brought to the main consideration in all industrial pursuits, the command of capital and the raw material, which we pre-eminently possess over the foreigner, and which enable us to produce objects whose quality improves with age, while those of the foreigner are too generally subject to the reverse condition.

Wandering through the several sections of the Exhibition, containing cabinet-work, we are at once struck with the lightness, the elegance, and the high finish, of the French productions. They seem to have acquired the art of making the best appearance at the smallest possible expense, in a higher degree than any other section of cabinet-workers. Their sideboards, their buffets, their escritaires, are so exquisitely arranged, irrespective of the quality of the material and the nice finish of the work, that they seem to anticipate not only your present wants, but to suggest others which you are really not cognizant of. What can be more apropos than that "Fancy Writing Desk" of MM. Daubert and Co., every part of which flies open by turning a single key, yet each part can be isolated from the rest, and secured when required. It contains a secret case, which conceals or exhibits its contents at pleasure. The lock, say those ingenious manufacturers, cannot be picked any more than that of Chubb (?). But to resume the somewhat glowing description of the fabricators; "the exterior is of rosewood, violet-ebony, and inlaid with brass and diamond pegs. The interior is lined with green scoles and britannia metal. This writing desk is the only one that has been made." It deserves all that can be said of it, and is a credit to the ingenuity of its manufacturer. Now turn to that book-case of Kreigler and Co., of Paris; it is certainly the most beautifully-carved production that

we ever beheld. To be sure the wood is light in the grain, which shows carved and relief surfaces to better effect than though it were dark; nevertheless, there is such a life-like, delicate, and nicely-touched precision about the objects represented, that you involuntarily recognise its exquisite beauty. This piece of cabinet-work is, perhaps, with the exception of a similar object in *carton-pierre*, which stands in the eastern nave, and presents the choicest modelling that it is possible to conceive, the most finished production in the Exhibition, of its class. Now cross the nave, and make your way to the Gobelin Tapestry and Sevres China-room; but before you enter just examine that sideboard on your right. You cannot possibly miss it, the character, the simplicity, yet the telling effect, not only of its detail, but of the *tout-ensemble*, must completely rivet your attention. How many sportsmen would long to have such a sideboard as that in their dining-room! The dogs, the game, the truthful delineation of both, and the artistic attitude of the former especially, comprise a study from which a considerable benefit might be derived, whether by a cabinet-maker or otherwise. This article of furniture is considered, by numbers, the masterpiece of the Exhibition; we shall content ourselves with simply repeating that opinion, and with admiring the object of it. Returning to the bulk of the French cabinet-work, you will not be disappointed in examining M. Mercier's *cabinet*, at least if you be desirous of securing convenience of structure, with elegance of exterior, in both of which it is singularly happy. Now extend your view a little further round the department, and you will observe a curiosity in its way, and such a one as will amuse you at least. That work-box of M. Marcelin, of Paris, contains 80,000 pieces of wood, and the table near at hand upwards of 100,000, all inlaid with the nicest precision. To lovers of this kind of work, these objects must prove a source of considerable attraction. Volker's buffet is also a beautiful idea, and exquisitely carried out; these French cabinet-makers are really first-rate artists, both in design and execution, as the cabinet of Tahan alone is sufficient to prove. Now take a skimming view of the other articles around you, or you will exhaust all your descriptive space, after which we will hie to the Austrian rooms.

At the first glance your eye is captivated with the rich mass of material before you; but as you leisurely examine the objects, and compare them with the French productions, you are at once struck with the heavy waste of material which they one and all exhibit. Look at that bed, with its redundant columns of wood, its clumsy

back and front, and its superfluous material in several other respects, and say whether it combines the requisites of a first-rate piece of furniture—namely, lightness, elegance, and durability. Or, in other terms, whether a far more effective object could not have been made with a great deal less material; certainly a Parisian *Ebeniste* would have almost furnished a whole apartment with it, and elegantly and effectually too. The bed appears to us just fit for a rich and royster-ing millionaire, who has more money than taste, and looks upon quantity as a more valuable item than quality in the course of his indulgence. The same remark may be applied to the tables, with some slight diminution; besides, the wood itself is, perhaps, the most repulsive for carving purposes, containing so many streaks and straight lines. The book-cases, in the same department, are light and elegant constructions; but the inlaid floors, upon which all this massive furniture is placed, appears to us to be the happiest effort of Viennese workmanship. Before we leave this quarter, let us not omit to examine the external appearance of that singular clock; it purports to represent the time at different great cities, widely distant from each other, by the Viennese calculation. For instance, the clock marks, say half-past three at Vienna, it would then be half-past five at Jerusalem; and at New York, Canton, or London, the corresponding difference, according to the relative longitude of each place, is marked on separate small dials on the same face. It may, with truth, be called a universal dial.

The American furniture is more characterised for its novelty than for its beauty or convenience, according to our habits. Uninitiated in the customs of our over-the-water brethren, we are somewhat puzzled to descry the peculiar excellence which many of their productions are said to display; it must consist in its adaptability to the peculiarities which custom has reconciled on the other side of the Atlantic, and not in its quality, either as regards finish or design. Whenever they imitate the old world objects of furniture, it almost invariably results that the production is at once clumsy and uncouth; but whenever our friends have to gratify one of their own spick-and-span-new-born ideas, there you will find their productions as *apropos* to the purpose as though they had passed through the best workshops of Europe, and indeed much better.

You will agree with me, after minutely examining the English contributions of furniture, that they exhibit a ponderous appearance in the main. There are exceptions, of course, to this charge, but they are rare. Turning out of the western nave, and entering the

lateral avenue which leads to the furniture department, your eye is arrested by the productions of Messrs. Gillow, a name eminent for the manufacture of cabinet-work. First, the sideboard in mahogany. In material there can be no questioning its quality; in workmanship it will of course pass muster; but in design, the essential character of first-rate furniture, there will be a diversity of opinion. A sideboard, with a couple of eagles attempting to fly away with it, is no very felicitous idea, and were it so, the eagles are out of proportion to the true anatomy of the bird, being too long and wiry in the body, as even an ordinary ornithologist would immediately discover. The library table, by the same contributors, is a massive piece of work, on which a great deal too much material is wasted; nevertheless, it has a rich and effective appearance. The sofa is heavy; so is the library chair, whatever other qualities it may exhibit. The table, certainly, is a beautiful piece of furniture, more than sufficient to redeem the defects in the other objects,—if defects we may presume to call them. Hunter's sideboard is elaborate, but clumsy; while that of Johnstone and Jeanes exhibits the opposite qualities, being elegant in form and finely carved. It is a good idea, and well carried out.

We scarcely know which to prefer of the two beds of Darley and Co., and Rogers and Dear. If we except the satin-wood bed of Trollope and Son—perhaps the most *recherché* object of the kind in the Exhibition, as it unites all the requisites of a finished piece of furniture, lightness, elegance, and effectiveness for its purpose, so rarely met with in the productions of our cabinet-workers—they are certainly the most attractive articles in the whole department. The “Renaissance” of Rogers is a beautiful shape, but the execution is not so first-rate as the design; and the “Elizabethan” of Darley and Co. is equally striking and effective. In our opinion the silk would have been better omitted at the foot-board; all wood must have had a more simple and striking effect. Smee's maple bed is a striking production, which many will admire, and justly so; while J. M. Levien's sideboard is of doubtful excellence, parts of it being most beautifully finished, and others just the reverse. For instance, the carvings let in the back bespeak a high quality of art, but those on different parts of the exterior, intended to correspond with them, are below par. We should infer that the back was an extraneous work of art, simply let in, and the other portions worked up to it by far inferior hands. The design is not bad, nor is the colour of the Zealand wood objectionable; and had it been carved throughout in the same spirit, it would have proved a very effective contribution. The “Cinque Cento Book-

case," of Messrs. Holland and Son, is not to our taste ; it is an elaborate specimen of a great deal of work for very little effect ; nevertheless, it has its admirers. But we feel a pleasure in directing attention to the console-glass and table by the same exhibitors ; they are really effective works of art, and deserve especial notice. The alternation of the shades of gilding have a good effect ; the design is truthful and poetical ; besides, it is exquisitely carried out, a rare feature in English productions. It is, to our view, one of the most striking and original contributions in the room. Dowbiggin's buffet is an elegant piece of furniture ; the carvings and the china corresponding with the other portions admirably, the whole being in good taste. Snell has an elegant contribution in the shape of a "Chimney Glass;" the frame being composed of carved walnut-tree. The sideboard is equally attractive ; and the satin-wood wardrobe is a delicate and beautiful composition. Jackson and Graham have furnished a sideboard of English oak in the Renaissance style, which, in our opinion, is the happiest contribution of the kind in the English department. The carving is elaborate, yet in good keeping ; the design is somewhat rich, yet minutely carried out. The glass at the back is the only doubtful portion, to our views, of this otherwise really splendid production. The inlaid loo table of Watson is an elaborate and minutely-worked production, perhaps more curious than interesting. Morant's table, suggested, as stated, by the Duchess of Sutherland, is an elegant production. By-the-bye, this is about the sixth instance of leading tradesmen proclaiming to the world that her Grace the Duchess of Sutherland is designer-general, or something like it, to their establishment. If true, it is certainly very gracious on the part of her Grace to enrich their impoverished ideas with a design or so, but the best-natured people cannot help thinking, that these astute dealers are simply availing themselves of the known kindness of that excellent gentlewoman, and in a manner, too, that savours more of craft than of grateful acknowledgment for favours received. The specimen of wall decoration, by the same contributor, is one of the most chaste, classical, and refined productions in the Exhibition. A cabinet, by W. A. King, of Whitehaven, is an object of considerable attraction, from the ingenious manner in which the different shades of wood are placed so as to produce a desired result. It is intended to illustrate the well-known episode in Scott's "Antiquary," in which Aldobrand Oldenbuck is a somewhat prominent character. The cabinet is made from three varieties of British oak, grown in Cumberland, and, taken as a whole, is a striking, original, and cleverly-

executed production. The beautiful *carton-pierre* buffet in the nave, to which we have already called attention, is by Cruchet, of Paris, and the walnut sideboard resting on dogs, considered the masterpiece of cabinet-work, described elsewhere, is by Fourdinois. The large glass of M'Lean is a splendid ornament to the Exhibition, as it displays the progress we have made in this branch of decorative art. It also presents an excellent study, from its finely-proportioned architectural frame, irrespective of the minute ornamentation which is always in keeping with, and effectually carries out, the main design. Ponsonby's large antique girandolle, and his chimney-glass, are equally entitled to examination, from the effective beauty which they respectively display. The Thames Plate Glass Company have furnished a couple of sheets of their handy-work, which, though slightly defective here and there, have no equal from abroad, nor anything approximating to it, either in quality of material, or reflective purity. In size, we are now almost unapproachable; neither the Belgians nor the French attempting to compete with us in that respect.

Before we close this chapter, we ought not to pass by the interesting contribution of Messrs. Harrison and Sinclair, of Leeds, which consists of specimens of wood, in almost every kind and description, and which is amply deserving of attentive examination.



CHAPTER XX.—PIANOFORTES.

PERHAPS there is no branch of industrial art that has experienced greater changes, in a given period of time, than the manufacture of pianofortes. From the first crude idea to the ultimate realization of any great invention, it must necessarily pass through many phases, and require many and successive improvements. Experience alone enables us, in carrying it out and reducing it to its simplest form, to detect many errors, and correct many misconceptions. Amédée Schröter, the organist of Nordhausen, when he first conceived the idea of an instrument which he named a *pianoforte*, could never have dreamed of the rich harmony of tone, and the wonderfully-diversified power, which an instrument from the hands of a Broadwood, a Collard, or an Erard, can produce at the present day. From the first application of the hammer to strike the cords of a keyed instrument, down to the last improvement of a "grand" or a "semi-grand," with

their exquisite mechanical arrangements, there were many, and almost untold gradations, through which the ingenuity of the head must have dimly and slowly directed the cunning of the hand. And it is so in every branch of science, and in every walk of art; for it is wisely ordained that we shall not be blinded by excessive brightness, but that, in order to preserve and strengthen our vision, light shall dawn upon us by degrees, and that, before we arrive at perfection, we shall do something ourselves towards its achievement. Pianofortes, therefore, like all other human inventions, have but slowly advanced to their present comparatively perfect state; and that advance has kept pace, and been regulated, by the intelligence and taste of those who have called them into requisition.

It is, we believe, generally acknowledged that we excel the foreigner in the manufacture of this instrument, with one or two exceptional points, which shall be shortly noticed. In all the essential requisites of a pianoforte—in touch, in tone, and in excellence of work—we excel the foreigner; in a larger quantity of tone,—not requisite, in the opinion of many, in a pianoforte, and generally attained by a sacrifice of quality,—one Continental manufacturer may possibly excel us. In a certain kind of ornamentation, and in delicacy of touch, a claim is equally made for superiority; the first we may be disposed to concede in certain cases; but the delicate, or *repetition-touch*, as it is designated, in this instance is acquired by too much complication of movement, which has a tendency to become noisy.

We shall now briefly enumerate the various improvements that have been made in the structure of the instrument, and carefully detail the respective merits of those who have effected them. Broadwood, Collard, and Erard, are the three firms which stand confessedly at the head of the manufacturers of pianofortes; but which has been the largest contributor to the improved processes alluded to, it will be somewhat difficult to state. Broadwood, we believe, was the first to apply metal tension bars above the strings, in order to lessen their strain upon the wooden frame, and transfer it to parallel metallic bars; but this improvement was greatly extended by Erard, who gave the bars a longitudinal direction. Another application of the same principle was patented by Stodart before Erard effected an improvement upon that of Broadwood, which was intended to produce the same result. A few years subsequent to the date of these improvements, the Messrs. Broadwood patented another, which consists in combining the solid metal bars with a fixed metal string-

plate, thereby improving the tone of the instrument. The *repetition-action* is due, we believe, to the invention of Erard—though the claim is disputed by M. Pape, a French manufacturer of acknowledged merit, and to whom many of the improvements effected in the pianoforte may be attributed—whatever may be its peculiar qualities; but the metallic studs, which give an upward bearing to the strings, thereby improving their powers of tension, were too close an imitation of the principle involved in Stodart's "harmonic bridge" to justify the Messrs. Erard claiming it as their own. The metal plate was first applied by the Messrs. Broadwood to one of their square pianofortes, as early as 1821. We now come to the improvements effected by the Messrs. Collard, which are by no means less important than those already detailed. The present method of stringing the instrument, which superseded the old system of using the loop or eye, was patented by this firm in 1827. It is now universally adopted. Another improvement, of equal value, was effected by them in the same year, and also became the subject of a patent, namely, the elongated damper-head, which completely obviated the jarring effect produced by the old method. The Messrs. Collard are also entitled to the first application of the *repeating-action* to vertical instruments; and to the same enterprising firm must be attributed the origin, or invention, of the grand-square, perhaps the most important addition ever made towards the perfection of the manufacture of square pianofortes. They also originated and patented an improved action for the "grand" instruments, whose simplicity and effectiveness is universally recognised; and, lastly, as regards large and striking improvements, the "symmetrical-grand square" is the production of their somewhat prolific invention. These, we believe, are the various and respective improvements effected in the manufacture of the pianoforte. We shall now proceed to estimate the contents of the Exhibition, as regards this section of musical instruments.

For quality of tone, the Messrs. Broadwood and Collard are about upon a par, and much superior to Erard, who has obtained it in larger quantity, perhaps; but what is gained in quantity is lost in quality. The harsh loud tone of many of Erard's instruments is more fitted for a large assembly-room than a drawing-room; and almost all good pianists remark that such a tone is out of place in an instrument like the piano. For durability, there cannot be a moment's question as to the superiority; the two English firms just cited being unequalled, in that respect, throughout the world. As regards touch, the Messrs. Collard, it is generally acknowledged, have attained the greatest per-

fection ; while that of Messrs. Erard's, being more heavy, is deficient in the nicer qualities of lightness and elasticity. The touch of Messrs. Broadwood's assimilates, if it does not equal, that of Messrs. Collard's, and is sufficiently delicate for almost every conceivable purpose ; at the same time, being produced by simpler means than Erard's, a more satisfactory result is attained.

We prefer the piano in the gallery to that in the nave, writing of Messrs. Broadwood's contribution ; in design, in workmanship, in the beauty of the wood, it is all that can be desired. In tone it is fully equal to anything yet produced by that firm, and that is saying much for its quality. The one in the nave is a grand production ; rich, but not gorgeous, the artist having observed the line which separates a refined from a partially defective taste. Nothing can be simpler, in contrast, than the black grain of the highly-polished wood, and the gold ornamental mouldings. In tone, also, it sustains the reputation of its fabricators ; but in design we consider it defective in parts. The artist has aimed at simplicity, but does not distinguish sufficiently between plainness and simplicity, as the separate parts of the instrument clearly prove, the case being tastefully conceived, yet made to rest upon mere props of the most primitive order of construction.

The grand of Messrs. Collard in the nave is an elegant and highly-finished instrument, characteristic of the beauty and perfection of English workmanship, in the highest departments of industry. It is all that can be desired in an instrument of that nature ; not overladen with richness of ornament, nor so exceptional in its external appearance that it ought to stand apart in a place specially appropriated to it. The cabinet piano of the same firm, up stairs, is also a beautiful instrument ; the finish of the work, the grain of the wood, and the style of the lower part, which is singularly original, being all and equally attractive. The square semi-grand, also, appears to us to realize the desired perfection in that class of instruments, and, to our judgment, is unrivalled. Of the people's piano the people must judge for themselves. Messrs. Erard are especially effective in their productions. Their grand is a study of itself. The gothic design is also beautiful, both in style and character ; so is the inlaid cottage, especially as regards elegance. In harps these manufacturers have no rivals, worthy of the name at least ; the Prince of Wales' harp, as it is called, is well worthy of minute examination, for the exquisite beauty and high finish of its work. Southwell has a grand piano, after Broadwood, which is excellent in tone, but clumsy in construc-

tion, the large gold mouldings being somewhat inappropriate. Kirkman has sent three instruments, which appear in excellent condition, both as to quality and finish of work; his "Tom Thumb" is really a curiosity, well worth a passing notice or so. Cadby has a grand and two cottages, constructed upon a new principle; upon which there seems a great diversity of opinion as regards tone, though the cases look remarkably effective. Hopkinson has a grand, which is copied from Erard, the lower part pretty good in tone, but not so the upper notes; and Mott's grand instrument, with its *panorque* attachment, in some professors' hands, would be most effective. A cottage by the same manufacturer is a simple yet useful instrument. Towns and Packer have a valuable contribution in their transposing, two-stringed, short grand instrument; its tone is excellent, and the construction is copied from Broadwood. A "cottage-economic" is also an instrument deserving of especial notice, as it comes within the range of the larger and somewhat humbler class than are generally wont to indulge in pianos; it is a simple, economical, yet effective production. Ennever and Steedman have sent a beautifully-designed cottage, but the tone is about the average, and does not equal the promise of the external appearance of the instrument; and Ralph Allison is also equally happy in his cottage-design, and equally so-so in the tone, the carving making up for the deficient quality of the latter. Stoddart has contributed a small grand-piano quite in the English style; in quality of tone very good, and its durability will not be questioned for a moment. The patent-square by Grainer, also manufactured by Stoddart, is equally attractive, from the peculiar construction of the action; it is simple, and well worth the attention of piano-manufacturers, as it may be applied to every form of instrument. Messrs. Jenkins and Sons have two instruments deserving of notice—a carved cabinet of walnut, and a cottage, which can be so arranged that it may be used on board ship, having a "collapsing" arrangement, as it is called. The first is a well-executed instrument, and the latter is singularly useful for the purpose mentioned, and, therefore, deserves to be made known. Lambert's contribution must attract notice, if it be simply to examine the keys of the instrument, not to omit the work of the case, which is somewhat effective and peculiar; and Hotsman and Plumb's inlaid marqueterie case presents a beautiful surface to the eye, and is excellent in workmanship, though the tone and touch are of the ordinary quality. The general run of the contributions from the provinces are inferior in the quality of tone and delicacy of touch, though several of them are really excellent in

their external qualities, and display occasionally a very creditable amount of artistic workmanship.

There are several very beautiful instruments in the French department, especially in their external ornamentation; some of them, indeed, in this respect, presenting models for the study of our own manufacturers. But in tone and touch they are, as a class, inferior to the English; and in truthfulness of work they are equally behind us. In simplicity of design and beauty of ornamentation, with some rare exceptions, they are rather before us. In this department, as in several others, our neighbours have learned the art of producing a great effect with comparatively limited means; and you will seldom discern any waste of material in cumbrous design or ornamentation, which too frequently characterize our own productions. The instruments of Messrs. Erard appeared to our judgment the finest in tone and touch of any in the French department, and approached the nearest our own in those qualities; and our remarks on their English productions may be applied with equal propriety here, seeing that the same peculiarities distinguish them in almost every respect. M. Bord's grand piano also calls for a favourable notice, judging it by the qualities just enumerated; there is likewise an important novelty in the internal construction of the upright instruments of this manufacturer, well deserving the careful examination of our own piano-makers, especially in the improved style of bracing. In the other foreign departments there are some fine squares, remarkably well got up; but, more or less, as far as we could test them in such a trying place, as regards sound, inferior to the English both in tone and touch, either as to the volume and mellowness of the one, or the delicacy of the other.

In the American department there are, considering all things, some very remarkable productions. Chickering of Boston has the best show. His grand piano is really a well got up instrument, highly creditable to the taste and workmanship of our transatlantic cousins. The tone and touch are not quite so free as ours; nevertheless, they are very near to us. His plan of putting in a cast-metal frame is a good idea, as it gives stability to the instrument, although it slightly affects the sound. The square piano on the same principle is also a fine instrument. The double grand with cast-iron frame answers no useful end; it may be called a musical marplot, as one part is continually jarring against the harmony of the other. Nunn and Clark's square is in a heavy style of construction, somewhat badly got up, and simply ludicrous in its internal arrangement. There are others of a decent exterior, but much inferior to the English in their general and essential qualities.

CHAPTER XXI.—PAPIER-MACHE.

AMONG the many inventions of modern times for diffusing the luxuries, and even the conveniences of life, there are few which have greater claims to our admiration than papier-maché. Whether it meets the eye in the shape of furniture, or in articles of general domestic utility, its beauty and agreeableness are equally striking and effective. Nor is it less so when applied to ornamental purposes. The nature of the material admits of almost infinite application, from its ductility, its lightness, and its comparative economy. Admitting a polish almost equal to that of glass, and receiving colours nearly as bright as those transferred upon the canvas, it alike presents an attractive surface to the industrial skill of the humble artizan, and to the entrancing genius of his intellectual compeer.

Assuming that our neighbours in France are entitled to the credit of inventing this beautiful and highly useful material, it is clear, by their own acknowledgment (vide *Encyclopédie Methodique* ; article *Moulage*), that we were the first to apply it to ornamental purposes. "Les Anglais," says the writer of the article, "font en carton les ornemens des plafonds que nous faisons en plâtre," enlarging further on the durability of this kind of ornament as compared to plaster compositions, and also upon the difficulty of detaching them from the surface upon which they may chance to be laid. Nor does the comparative economy of this article for ornamental purposes escape the notice of the writer.

The seat of the manufacture of papier-maché is principally at Birmingham, and one or two adjacent places, except that portion devoted to architectural ornamentation, which is almost exclusively confined to the metropolis. There are three kinds of papier-maché in ordinary use, or rather three modes of preparing the raw material, which it is necessary to point out. The first and most important is that which forms the basis of the highly ornamental objects of furniture, and the better qualities of general objects of domestic utility ; the second is confined to the commonest articles manufactured ; and the third is the preparation for ornamental and architectural purposes.

The first process is as follows :—Several sheets of paper are carefully pressed together by means of paste, upon a mould, which is the exact form of the object to be produced. The paper is of a grey, spongy nature, and great care is taken to make it even on the surface. Formerly it was produced by hand, when the manufacture was in a comparatively rude state ; now it is made by machinery, somewhat

skilfully constructed, so that it may receive the most delicate manipulation. When the stratum of paper is sufficiently thick, it is placed in a stove and dried, which converts it into a dense, light, yet strong body, capable of sustaining weight and form; it is then planed and roughly smoothed down to its intended shape in the same manner as wood. The article may now be called in its grey state. The next step is to dip it in spirits of tar, which renders it impervious to the atmosphere; it is then subjected to a heat varying from 120 to 130 degrees, of from 12 to 14 hours' duration, which makes it so hard that it can be filed, chiselled, and planed, to the nicest relief, like the hardest wood. When the cabinet-worker has finished his part, the article is japanned, and pumice-stoned as smoothly as possible; the next process is inlaying the pearl, after which it is varnished and polished, to receive the last ornamentation—gilding or painting.

The second process may be summarily described. It consists in reducing numerous sheets of paper to a pulpy state, and then compressing them to the form required by means of a press and die. The adhesion of the several portions of the paper is very imperfect, and exposure to the heat of the stove has a tendency to weaken, rather than strengthen, the bulk, so that it becomes brittle, liable to fracture, and not so durable as though it underwent the preceding preparation. This process is only adopted in the manufacture of inferior kinds of goods, and was formerly the subject of a patent. Brindley was the name of the patentee, but he lived to see his patent die, and the right has now become common property. Clay, we believe, was the inventor of the first and best process, which in his time was only applied to the making of tea-trays and the smaller class of goods. Its more general application is the result of experiments made within the last fifteen or twenty years, and which are principally due to Messrs. Jennens and Bettridge.

The third process consists in reducing the substance to a pure and homogeneous paste, which is capable of receiving almost every variety of plastic form, and can be moulded or modelled like the finest clay. This forms the basis of that new and beautiful style of architectural ornamentation which has become of such extended utility, both in public and private edifices. The invention of this new process is, we believe, due to Mr. Bielefeld, whose works, in this style of ornamentation, at the British Museum, and elsewhere, are publicly known. The Messrs. Haselden, of Wardour Street, are also equally entitled to the credit of applying the process to ornamental purposes.

Reverting to the primary branch of the manufacture, the most

singular feature in regard to it, perhaps, is the variety of styles of ornamentation which have successively taken the place of each other. The simple gilt lines round the tray, the first application of art to such objects, were superseded by floral and landscape decoration, which gave employment to a rather superior class of artists. The Japan or Chinese style of ornamentation never obtained a permanent hold upon the trade, as the *impasto*, or raised style of decoration, could not endure the wear and tear of a tea-table service, which is sufficiently trying even to an even surface. Then came the inlaying of pearl, which marks an era in the manufacture of papier-maché, as its brilliant effect in ornamentation was at once so novel and striking. This mode of ornamentation was originally introduced by Messrs. Jennens and Bettridge, who patented the process about fifteen years ago. From the beautiful surface of the material, and its somewhat ready reception of colours, we have now, independent of papier-maché objects, a series of copies of the finest productions of the modern school of art; and those who are too limited in their means to purchase a Landseer or a Redgrave, may procure a most excellent copy of either at a very little expense, and have it placed before them on the surface of a work-box, or on any other object of elegance and utility.

The usually adopted modes of ornamentation, however, are the arabesque and the floral, as both admit of great scope in decorative originality and taste. However, as more subdued and refined ideas prevail in regard to the internal arrangement of dwelling-houses, the ornamentation of articles of papier-maché will become of great and increasing interest, the lightness and elegance of their nature rendering them agreeable objects of use as well as ornament. Our manufacturers are aware of this circumstance, and, in several instances, have given practical proofs of its influencing their productions.

Confining the application of papier-maché even to articles of general utility and ornament, although it has absorbed a wider range of ornamentation, the panels of our first-rate steamers being now decorated with it, we cannot refrain from congratulating our manufacturers, who have imparted to this material so much beauty and elegance, and such a large amount of really artistic taste. In these respects we are far in advance, not only of France, but of the entire continent. Indeed, it may be called an industrial art of our own, for in papier-maché Birmingham and Wolverhampton, not forgetting the manufacturing establishment of Messrs. Jennens and Bettridge in London, have no rivals, nor anything approximating to an equality.

In Paris the papier-maché manufacture is pursued with consider-

able success, a few skilful English workmen having migrated to that city, but it is decidedly inferior, in almost every respect, to that of this country. We now keenly compete with France in her own markets, though a heavy duty, in some instances amounting to a prohibition, is imposed upon our productions. For example, upon a set of tea-trays, weighing eight pounds, and worth about twelve shillings, a duty of eight francs is imposed; while upon a set worth about ten pounds, the same amount is paid, the duty being levied by weight not value. This heavy duty completely excludes the lower-priced articles from the markets of France, for which there would be a great demand, while upon the better kinds of goods it bears comparatively light, for which there is but a limited demand.

The application of papier-maché to ornamental and decorative purposes is equally deserving of notice, not only for the amount of capital and labour employed upon it, but also for its beauty, its variety, and its general utility. Nearly equal to wood in durability and ornamentation, and admitting of much easier application, it is far less expensive, and economy is a great point to observe in every industrial application of art, as the whole and entire aim of human ingenuity, in all matters appertaining to progressive improvement, is—*to obtain the utmost possible effect at the smallest possible expense.* Hence the widely-diffused taste for embellishment avails itself of this material in preference to those of a more durable, but more costly, nature; and had not the qualities of papier-maché, for ornamental purposes, been thoroughly proved, the art of decoration could scarcely have enlarged its preceding limits. In every direction, where ornament is requisite, our eye encounters scrolls, foliage, cornices, mouldings, and other internal objects composed of that material; and the same bold relief, the same exquisite finish of touch, and the same variegated beauty is as manifest as though the more costly, and less pliable, material of wood had been called into requisition. And not only upon flat surfaces is papier-maché used, it is now applied to frames of almost every kind, with this advantage over wood—it is lighter, does not warp, admits of greater ornament, and is much more economical in its cost.

With these prefatory remarks upon the rise and progress of papier-maché in our recollection, we shall better appreciate its present condition, as shown in the contributions to the Exhibition.

The first object that attracts the attention is a pianoforte-case of Jennens and Bettridge, which is remarkable for the classic beauty of its form, and for its chaste yet effective ornamentation. This, we believe, is the first application of papier-maché to the structure of

pianofortes; and, judging by the present example, we should infer that it will by no means be the last. The case is elegantly shaped, after the Italian school of design, and its curved ends enable the makers to exhibit to advantage their mastery over the material. The pearl presents an effective contrast to the deep, jet black ground upon which it is somewhat profusely, yet delicately, laid; and the whole appearance of the instrument bespeaks good taste, both in design and the finish of the work. The next attractive object is the "Victoria Regia Cot," in which the designer has imitated the magnificent lily of that name. The design and ornamentation of this artistic curiosity are striking and original, and the idea is tastefully carried out. There are, likewise, one or two objects of great ingenuity—a *multum in uno* loo-table, constructed on a new principle, and combining bagatelle-board, chess, draughts, &c., whose mechanical arrangement is exceedingly curious, besides being effective. A Lotus Work-table is equally attractive, from the novelty of its construction; and a Lady's Work-table, suggested by the well-known vase of Cellini, richly inlaid with pearl and gilt, singularly illustrates the value of art as an aid to manual industry. The "Day-dreamer Chair" is a flight of fancy materialized, if we may be allowed the term, most beautifully; and the "légère chair," inlaid with pearl, is remarkable for its light elegance, combined with strength. The "Redgrave Tray" has become almost proverbial for beauty and utility combined. It derives its name from the artist who designed it, and must have amply repaid the manufacturer for his first outlay, thereby encouraging a still further employment to the highest branch of art. We as naturally look for it in a papier-maché collection of the first class, as we would for a Turner or a Landseer in the higher regions of collective art. By the bye, this contribution is peculiarly rich in trays, of one kind or another. Besides the one just mentioned, with its beautiful decoration of the royal arms, we have the "Pasha's Tray," richly ornamented in gold and colours, and measuring fifty-eight inches in diameter; a tea-tray, ornamented with the tea and coffee plants in gold and colour, quite new in shape; and, also, the "Sutherland Tea-urn Tray," which is characteristic of the taste of that noble lady, who adds a grace to her name. We must pass over the minor articles, though well deserving of study and notice, in order that we may introduce to the reader a series of objects equally deserving his attention, perhaps more so, as they belong rather to the useful, though they have great merit even in their ornamental character.

A cabinet, in style partly Elizabethan and partly Italian, of rare

beauty, both in character and ornamentation, is exhibited in the group of M'Callum and Hodgson, who may be classed among the highest in the useful category of this branch of manufacturing art. The front panels of the cabinet contain well-executed portraits of the Queen and Prince Albert, and on the sides are portraits of the royal children, disposed in groups. It is also remarkable for its exquisite finish, and for its brilliant, yet, withal, chaste style of ornamentation. It is rich, not gaudy, and the distinction is nicely and delicately preserved. The facilities afforded by the material and the adaptibility of pearl almost tempts to over elaboration, but in this instance that fault has evidently been avoided. A large table, inlaid with flowers, in pearl, is also judiciously treated, as regards the over-attractive qualities of the material just mentioned, and forms a striking object in the Exhibition. A bracket-glass, with lights, is an elegant appendage for the boudoir; and a tray, called "new," fully deserves its designation. The music-stands, fire-screens, work-tables, and flower-stands, are a series of objects which not only gratify, but absolutely inspire, good taste, whenever they chance to meet the eye, and, to a certain degree, are instrumental in promoting the elegant enjoyments of life. The same observation may be extended to the writing-desks, the dressing-cases, and other minor objects of almost hourly necessity, which are so anticipative of the multitude of little wants, more or less constantly assailing us in our social relations, that they cannot fail to be appreciated. The finish of the work, also, appears in the best manner, and not run up for mere sale, in a showy and taking style, as too many articles of this class of manufacture are apt to be. It is evident, from their contribution to the Exhibition, that these manufacturers aim at diffusing their productions amongst the well-to-do many of this world, and not manipulate them exclusively for the refined and fastidious few, excellent in their way, but necessarily limited in their number.

Passing from the essentially useful, taking the latter term in its highest sense, we must turn for a moment to the ornamental, but not in its purest and most severe taste. The patent pearl-glass papier-maché productions of Mr. Lane are of this class. There is a tendency to out-Herod Herod in the blaze, not brilliancy, of this class of productions. *Troppo e troppo, mio caro amico*, as the Italians familiarly phrase an over-done thing; and there is something "too much of this" in the glassy glitter which almost every instant "glints" upon the eye, when directed to such objects. Nevertheless, it cannot, as we think, be avoided, nor even greatly diminished, as the nature of the materials, irrespective of the mode of treating them, must naturally

“wear” such an appearance. The principle of Mr. Lane is the application of pearl under glass, upon which the design is painted, and the effect is as we have feebly attempted to describe. The difficulty, hitherto, has been to subdue the pearl, its semi-translucent nature alone, irrespective of colour brought in contact with it, rendering it almost unmanageable for ornamentation, when the requirements of a refined and cultivated taste are to be consulted. Apart from this drawback, the work-tables, ink-stands, desks, and panels for ships’ cabins, are highly creditable to the taste and workmanship of the contributor. The panels are especially rich, and must have required a great amount of labour to complete them. Another process, of the glittering order, is employed by Mr. Lane, called “gem painting on glass.” Miss E. Tonge, of Boston, appears the inventor of this process. It is gorgeous in the extreme, to say the least of it. The principle involved is similar to the patent pearl, and the effect is like a number of precious stones set together, on a dark ground, and covered with a thick glass. The application of this kind of decoration appears the most effective upon panels, and, from its novelty, will naturally attract the attention of a large, if not over judicious, class, in matters of taste and ornamental decoration.

A large folding screen, by Mr. R. Turley, deservedly solicits a remark or so. His style of ornamentation bespeaks a definite purpose, as though there was mind, however limited, engaged upon it. The leaves of the screen are divided into compartments, containing a landscape, a group of flowers, or a basket of fruit, the whole being encircled by gilt borders. The paintings are rather remarkable for the power exhibited, both in design and in execution. There are other objects in this collection of peculiar and marked excellence, but strikingly similar to some that we have already noticed.

Glancing at the useful, we find a great disparity in the mode of ornamenting and executing the material; in some productions there is both elegance of design, and a subdued tone of tasteful execution. On the other hand, we occasionally detect a coarseness and clumsiness in both respects, or, in other terms, an unthrifty mutilation of materials. As an example of the former quality, we may direct attention to the trays of Shoolbred and Loveridge, of Wolverhampton, who appear to combine the essential and the ornamental, with the view of securing the economical, in this class of productions. There is nothing in the Birmingham contribution to equal them, of the same kind and standard of goods; they evince the quiet taste, the calculating adaptability, and even the subdued richness, that we have already described

as the attributes generally of the highest class of productions. And these remarks are equally applicable to the contribution of Mr. F. Walton, of the same place. "The seasons," a series of trays, will fully illustrate our meaning; so also will the Alhambric set. Among this contribution there is also a high style of art adopted. The bouquet of flowers, adorning the top of the table, is at once natural, luxuriant, and graceful. There is no little amount of taste displayed in that combination of colours; a nice eye, a delicate perception, and a poetic discrimination, have all been brought into play, while culling and collating those scattered hues of nature. Retchz's outlines of Goethe's over-praised Faust, form the subject of another set, but we cannot speak so highly of the effect of these productions. Still, they are ably executed; the subject itself being anything but attractive, except to the muffled and mystic morals of a German mind. Is there not "pith" enough in Shakspeare for the illustrative power of our artists, without running so eagerly after his fifth-rate imitators? It can only be the result of a morbid, muddle-headed vanity; a hankering after the eccentric and exceptional in the intellectual world, while the truthful and the beautiful are passed by, though right in your path,—a mental disease, let the æsthetically learned say what they will. Back to Birmingham for a few minutes. Mr. J. Sutcliffe exhibits a large number of trays deserving of notice, if it be merely to mark the progress which has been generally made in the manufacture of papier-maché. They are, for the most part, highly excellent in their way, and seem intended for a definite class of purchasers. There is one piece of merely ornamental work from the great practical workshop of the world—the panel of heraldic painting, by Mr. J. Clarke. It contains upwards of seventy-four coats of arms, the centre being graced by the royal arms; and, on the whole, is a very creditable performance.

The contributions of Mr. Meehi, scattered over the Exhibition, are highly characteristic of the taste and ornamentation which he has so long encouraged in articles of papier-maché, and cannot fail to attract the attention even of the most careless passer-by, whatever may be their relative merit as compared to other productions.

Turning to another class of productions, our attention is naturally arrested by the display of Mr. Bielefeld. We have already remarked that he has made the ornamentation branch almost his own, if we except Jackson, whom we shall shortly notice. The scrolls, bas-reliefs, frames, capitals, and cornices contributed, are marvellous specimens of the effective ornamentation which the material is capable

of, under the hands of a dextrous manipulator. The bust of Flaxman is a favourable production, considering the nature of the material, and so is the bracket angel, which has all the sharpness of outline and the softness of expression it would have were it marble. On the whole, these specimens of ornamental art are interesting in more ways than one; first, as denoting that a more refined taste is spreading amongst the community, and that the means to gratify that taste keeps pace with its expansion. The *Carton-pierre* specimens of Jackson are chaste, elegant, and carefully-prepared contributions; their fitting-up presenting them, certainly, in the best possible light. Nevertheless, they are deserving of all judicious commendation.

CHAPTER XXII.—POTTERY AND PORCELAIN.

IN the manufacture of pottery and porcelain we have no equals, taking beauty, economy, and utility into consideration. All the Continental states are far in arrear of us in this branch of industry, and have little chance of competing with us, while they are comparatively deficient in the raw material and the capital to turn it to good account.

"The positive imperfection," says M. Flachet, in his interesting report, "of our pottery, discloses a gap in our industry which ought to be filled up—a vice in our tariff which must be removed. France is deficient in the raw material for a good and cheap manufacture of pottery; she pays too much for fuel, as compared to England. The latter country combines all the essentials for the manufacture of cheap and good pottery." And the merchants of Bourdeaux, Lyons, and Havre, who petitioned the Chamber of Deputies, in 1834 and 1839, to alter the tariff, bear indirect evidence of the truth of M. Flachet's observations:—

"We cannot too frequently call your attention," they say, "to our pottery and china-ware. A duty of eleven to sixteen francs is imposed upon foreign common pottery; the finer qualities being altogether prohibited. These articles, were they subject to a moderate duty, would afford us a large exchange with England, and, from their bulk, give considerable employment to our shipping. We implore you to give them admission, not only as articles of commerce, but as articles of the first necessity, of which thousands of families in France are now deprived. In fine, a dozen common plates in England is worth

about sixty centimes (say sixpence), while in France the price varies from two to three francs."

There is also another point of equal importance respecting pottery, which throws a somewhat singular light upon the inferior condition of the French manufacture. We all know that vessels for holding meat and drink are almost as indispensable as the meat and drink themselves; and the two requisite qualities are, that they shall be cheap and easily cleaned. Pottery, as it is now produced in England, possesses both these qualities in the very highest degree. A white basin, for instance, having all the useful properties of the most costly vessels, may be purchased for twopence at the door of the humblest cottager. There are few substances used in human food that have any effect upon these vessels; they simply require rinsing in hot water and wiping with a cloth, and they are clean and fit for immediate use. Let us see how the French are circumstanced in this respect. "If we recall," says M. Flachat, "the observations of M. Brogniart, a most competent authority, it is simply to strengthen the prayer of our merchants. He says, *the unhealthiness of the pottery in common use in the country is notorious*. There are certain qualities so badly made, that the slightest acid employed for domestic purposes is sufficient to decompose the glaze, containing a certain portion of lead, which immediately mixes with the food in the process of cooking. None of our pottery can resist the contact of sulphuric gas; and the greater portion, if exposed to the air a few days, becomes covered with a surface, which indicates that the oxygen has combined with the lead in the glaze, and that the latter is decomposed. The fact is, the glaze is too little burnt, being principally composed of lead, which requires but little fusibility, so that the atmosphere soon affects it. Lead is used to make the article cheap; other and better materials being too expensive with us."

Another intelligent foreigner, from a different part of the Continent, also bears testimony to the excellence of our pottery:—"If we compare," says M. Kohl, "the common earthenware of England with that of the French and Germans, or of any other nation, it appears not only excellent in quality, but also highly ornamented and unsurpassingly beautiful. The common French and German is comparatively ugly, coarse and misshapen."

Let us rather direct attention, then, to the manufacture of porcelain, which requires a higher class of art, and involves a greater amount of skilled labour—seeing that we are acknowledged, even by our foreign competitors, to be unequalled in common pottery. Be-

sides, it is only in the comparatively higher branches of industry that we are called upon to put forth our strength in the Exhibition; our rivals tacitly acknowledging that we surpass them in the lower branches by sending, in a majority of cases, their choicest and most refined objects. In porcelain this is especially manifest.

We shall abstain, for want of space, from minutely describing the different processes of the manufacture, though reluctantly, and shall content ourselves with briefly sketching them, in order more particularly to note the great improvements that have been effected by our manufacturers, within the last few years even. We shall pass over the building in which the crude materials are reduced to a plastic or working state with its ponderous stone, whose crushing weight is many tons; the mixing-room, where the pounded ingredients are worked up into a smooth kind of clay; the "throwing" room, where the process of giving a circular shape to vessels is effected; the various kilns which are used for the progressive stages of the manufacture; the modelling department; and, lastly, the decorative rooms, where the final touch and ornamentation is imparted to the object. Nor shall we bestow but a passing notice or so upon the rude ingredients used in the manufacture, which consist principally of common flint, flint in the calcined state, Cornish stone, Cornish clay, and calcined bone, all ground together and mixed with water, so as to form a beautifully fine and plastic clay. The chemical researches into the nature of the materials in common use have been varied and numerous, and the "mixing-room" now could disclose many secrets which each manufacturer endeavours to keep to himself; for that is the stage where the experience and judgment of the latter are brought into play,—the quality of the porcelain depending principally upon the number of ingredients used, and the proportions in which they are combined. Within a century, the strangest views were entertained in Europe respecting the composition and nature of Chinese porcelain; and it was only after several experiments that Reaumur discovered that the China clays, called *pe-tun-tse* and *kao-lin*, produced porcelain. It then became an object of importance to ascertain whether any clays or earths similar to these existed in Europe, and, about seventy years ago, there were discovered in Cornwall two kinds of earth which nearly answered in the desired qualities. Since that period, various improvements have been introduced, in order to procure a porcelain possessing hardness, strength, firmness of texture, whiteness of colour, and a capacity of receiving and retaining colours and gilding on its surface; but the Cornish clay, as a basis, is still indispensable in the

manufacture of the finer porcelain. The respective qualities of the ingredients used may be thus arranged :—the clay gives the plastic quality, the flint imparts the vitreous or strengthening quality, and the bone aids in producing the semi-transparency, for which porcelain is so much admired. A plate, accidentally broken in the contribution of Alderman Copeland, exhibits these various phenomena to advantage, especially the homogeneity of the material in its compound state.

Before we proceed to point out the relative excellence of home and foreign made porcelain, it may not be uninteresting to glance at its condition in France, our principal rival in the highest branch of the art. In the article of porcelain, the latter country has long enjoyed a deserved reputation. The quality of the material which she uses, her exquisite manipulation of that material, the beauty of design, and fine taste of painting, all of which she imparts to this branch of industry, have given her hitherto a marked pre-eminence in the markets of Europe.

“France,” says the excellent authority quoted before, “has a fundamental advantage in the manufacture of porcelain, in the excellence of the raw material. The *kaolin* of Saint-Yrieux is the purest in quality ever known; and this cause, added to our taste in the arts, explains the progress of this beautiful industry. The hard porcelain-paste in the manufactures of Paris and Limousin is composed of four parts of unwashed *kaolin* and one of *felspar*. The paste, called the *service*, in the Sèvres manufacture, contains sixty-four parts of washed *kaolin*, six of Bougival *chalk*, ten of pure *sand*, and twenty from the washing of *kaolin*, in one hundred parts. The washing of *kaolin* at Sèvres completely separates the sand from it, and imparts to the paste a more argillaceous texture than that used at Paris, which, according to Brogniart, renders it more susceptible of undulations in the burning, and more capable of being shaped on a large scale. Here then is a branch of industry truly French, in every part of which we are superior to our neighbours. Excellent raw material, skilled hand-labour, and priority in the art of designing.”

Notwithstanding these manifest advantages,—which, by the skill and capital of our manufacturers, and the fine class of art which they now avail themselves of, are daily diminishing,—the porcelain manufacture applies itself but rarely to the wants of the many, whose tastes and means are of too humble and limited a nature in France, and indeed elsewhere, to indulge in such costly objects. This fact is confirmed by the judicious writer just quoted :—

“The manufacturers of porcelain,” he says, “have neglected to exhibit a class of objects that would come within the range of the

ordinary purchaser, and seem to think that little interest would be taken in such productions. They are mistaken. Whenever productions for ordinary use exhibit any improvement in their manufacture, the public not only admire, but eagerly purchase them; and it would be the same with porcelain, were any sensible diminution to take place in its price. Surely here is a motive sufficient to imitate the beautiful pottery of England, so universally diffused in that country, as compared to France; but here we are met by an awkward objection—that we are comparatively deficient in the mechanical means, and that our manufacturers do not possess the capital for manufacturing cheaply. Our excellence in this branch of industry is mainly dependent upon our skilled labour, the productions of which are necessarily limited in their scale.”

Regarding the patronage of art by the State, which has been so frequently enlarged upon in this country, as one of the causes of French excellence in certain branches of industry, there are several opinions entertained, even in France, on that head. Take the royal manufacture of Sèvres as an example in point. That establishment has not injured the general industry of France so much by coming into collision with private enterprise, as by artificially stimulating its productive power. A healthy state of industry must depend upon individual enterprise, and not upon State patronage, as the instincts of private interest are more powerful stimuli to success, than the mere dictates of a cold sense of duty. Hence the material improvements in the manufacture of porcelain have not emanated from Sèvres, for economy is the last lesson to be expected from that quarter, without which there are no means of giving an extended development to any branch of industry.

“It must be allowed,” remarks M. Flachet, “that the manufacture of Sèvres is animated with a desire to extend its knowledge and skill for the benefit of industry; but experience proves that its services are but of a secondary nature, and that the money absorbed annually in that temple-fabric of luxury, might be more usefully employed in schools of design, of chemistry, mechanics, and metallurgy.”

We fully agree with this intelligent writer. True excellence, that is, excellence of an enduring and healthy nature, must spring from the moral and intellectual feelings of the mass of the community—and especially industrial excellence, as it almost invariably wanes and withers when petted and pampered by artificial means. The manufacture of porcelain in this country, on the contrary, is characterised more by its simple beauty and utility, than by the cost-

liness and refined luxury of its productions. This branch of industry, like most others in England, is based upon sound and healthy principles; it is, so to speak, creeping up the pyramid of perfection by its own innate excellence, and, as it rises towards the apex, it manages to keep a firm hold upon the strata below, in order that it may sustain itself surely in its upward movements. And this, after all, is the true test of its vitality. France, if we may be allowed the figure, has inverted the pyramid in almost all her industrial pursuits. She produces the richest silks, the finest printed cottons, the most costly porcelains, and, in a few instances, the most minute and skilful machinery; but these productions are not only limited in quantity, but are necessarily confined to the few; while for the many—assuredly the most useful class of customers, and without which no industry can long sustain itself in a healthy state—she provides inferior low-priced silks, dear cottons, villanous crockery-ware, and execrable cutlery.

A glance at the contents of the Exhibition, in the porcelain department, will fully sustain the preceding remarks, and convey to the reader the precise condition of our manufacture, as compared with that of the Continent.

The largest contributor is Alderman Copeland, both in quantity and variety. Here we have almost every imaginable article of domestic use and luxury, and all specially aiming at one result—*beauty of appearance with utility of purpose*. It is in this combination that we are far in advance of the foreigner; and, above all, in the truthfulness of our work. The uses to which porcelain is now applied have opened a wide field for the skill and ingenuity of the manufacturer, of which Alderman Copeland seems largely to have availed himself. The tiles, panels, and table tops, carefully prepared, are not the least attractive objects in the contribution, seeing that this fine material, in several instances, has superseded marble for decorative purposes, and far excels it in point of beauty, variety, and economy. In this respect we are much in advance of our continental rivals, both in the quality of the material and the beauty of the illustration.

The porcelain statuary is entitled to equal commendation. The cold, blue-white, and cheerless bisquet work will bear no comparison with the former, either in conveying beauty, feeling, or expression; the warm, genial, and flesh-like quality of the Parian has had the effect of disseminating some of the finest productions of statuary; and, what is a material point, at a comparatively moderate price. A happier medium could scarcely be devised for extending a true and

beautiful knowledge of the arts, as it is unequalled for its almost thinking and speaking appearance. The "Ino and Bacchus," and the "Sappho," are examples in point; and the figure of "Susannah," the largest and finest that we have yet seen in this material, presents a singular specimen of its effect. It has the beauty and softness of marble, with all the graceful undulations which hitherto have been so difficult to preserve in porcelain. There are several other objects deserving of notice, especially where a fine relief is represented on the surface. The Dubarri Vase is highly creditable to the taste and artistic quality of the contributor, and reminds us of some of the most *recherché* objects of a similar kind in the Sèvres department. The colour is laid in with great delicacy, and the quality of the porcelain, to receive it so richly, is not one of its least remarkable features. Nor are we indebted to foreign art for the beauty and delicacy of designs on porcelain objects. The reproduction of the Etrurian style by Mr. Battam is highly creditable to the genius and character of English art as applied to industrial objects. The "Sutherland Rose-cup" is an elegant specimen of minute and skilled workmanship, both in painting and in chasing. In fact, the varied vases, cups, dishes, and other articles in this contribution are characterised, generally, by great beauty of ornamentation and a fine quality of material.

The next contributor of importance, and, perhaps, of a more delicate nature, is Mr. John Rose. First, let us dispose of his Parian group of the "Pleiades adorning Night;" it is a fanciful, and somewhat highly poetical, conception. The grouping of the figures evinces a correct idea of form, and of the exquisite outlines which may be produced by a skilful treatment of it. On the whole, we consider this group a pleasing and attractive performance. "Puck" is a merry conceit in the same material. There is nothing in china, in our opinion, in the whole Exhibition, to equal the "Rose Dubarri" style in this contribution. The colours are exquisitely laid on; the character of the art employed is equal to the materials used. This colour and the tourquoise are difficult to produce of an equal depth and beauty to the Sèvres, though numerous attempts have been made in this country, therefore it becomes a matter of considerable interest whenever the manufacturers succeed so happily as they have done in this instance. The "Rose Dubarri" and gold vases, and the blues to correspond, are both novel in shape and brilliant in ornamentation. A coffee service, beautifully and delicately painted, is equally deserving of notice, besides other objects in the same case; but the difficulty of gaining anything beyond a simple glance

precluded us from inspecting them, as we otherwise should have felt a sincere pleasure in doing. The "Dessert Service" of Minton has naturally attracted great attention, especially since the Queen has purchased it for presentation to the Emperor of Austria. The marked peculiarity in it is the somewhat abundant use of the Parian with the ordinary porcelain, otherwise it would not have particularly struck us, being tame, and not superlatively tasty, either in the character of the design or the colouring. The variety of this service is in some measure its especial recommendation. Chamberlins exhibit a singular style of porcelain, which is at least original, if not over-pleasing. It somewhat resembles a honeycomb in pattern, and the colouring is rather rich, although not of the most subdued kind. Alcock has a beautiful specimen or so of bisquet work, some of them exquisitely designed by Alfred Crowquill; and Ridgway is particularly happy in the shape of one or two of his plates, to say nothing of their fine ornamentation. A chaste and beautiful white and gold service by Daniel and Co., is deserving of especial notice; it bears the cypher *sans changer* on it,—the device, we apprehend, of its owner. Edward and Son have a large imitation of the Warwick Vase, executed with great fidelity and rare beauty; a minute examination of the bas-reliefs will amply repay the trouble. The contribution of Wedgwood is rather singular than beautiful, exhibiting, as it were, the *nominiis umbra* of the past age; but the fine vases of Mason in iron-stone compensate, in some measure, for this deficiency. Meigher and Sons have also a couple of vases, with the portraits of the Queen and Prince Albert, which attract notice from the novelty of illustration, and the boldness of design, which they display.

In the foreign departments we have several rich specimens, especially Sèvres, one or two of which we remember, some years ago, in that establishment. They are, perhaps, the finest productions of the kind in Europe: with these we have no pretensions to compete, though we have made considerable progress in painting on porcelain, and in some instances are fully equal to our neighbours.

In the Austrian department there are some beautiful specimens of Bohemian porcelain, which are well deserving of attention. In form, in colouring, and in the quality of the material, the manufacture is equally excellent, and furnishes a fine study for our countrymen. The vases and jars of Elbogen are novel in shape, and are exquisitely ornamented. A set of dessert plates, each containing a ruin of the cities of the Holy Land and the adjacent country, are likewise entitled to a passing remark, if it were only to point out the charming

style of colouring which the artist has adopted. Some tea cups, with gold grounds and coloured reliefs, are equally striking objects.

In the higher branches of porcelain art we must, therefore, yield to the Continent; in the intermediate and useful we have no equals, especially as regards the quality of the material.

CHAPTER XXIII.—SILKS.

IN the department of silk we occupy highly creditable ground, especially if viewed with an eye to economy. Nor are we much lower in the richest class of productions, where taste, texture, and design are indispensable, for in all these qualities of manufacturing art we have made, within these few years, an unmistakable advance. At the present time we have one rival to overtake, upon whom we are quietly yet surely creeping, and the distance between us gradually lessens as we keep steadily and doggedly on our course. A single glance at the Exhibition, however, will satisfy even a Spitalfields weaver, and others who are blessed with a similar disposition, that we are yet in the rear, though we are right in the wake of our ingenious and talented teacher.

To the credit, be it said, of our merchants and manufacturers, whose enterprise is mutually enriching, we have placed in the Exhibition the finest specimens of the raw material, in their several qualities and conditions, which furnish at least an indirect proof of our great progress, whatever may be the real secret of our extraordinary success. The manufacture speaks for itself; it requires but little practical experience to recognize its present excellence, which may be distinctly traced in every article, from the narrowest ribbon to the broadest brocade for garments. In each and all of these stages, the mechanical and manipulative skill of our artizans, though but recently acquired, is severally exhibited. It is only within the last ten or fifteen years that we have attained the knowledge of making the richest class of goods, either in the ribbon or in the broad department of silks; and it would now require a nicely-tutored eye to distinguish with accuracy a rich brocade manufactured in Spitalfields from one that is just fresh from a loom of Lyons. The same remark may be applied to ribbons, but perhaps with greater force, as there are specimens to which we shall shortly refer, which clearly prove that

we have largely gained upon our neighbours in more than one direction. In shawls, handkerchiefs, and other minor articles of female attire, we are fully equal, and in some respects superior to our Continental competitors, if a slight deduction be made in what is called taste and design; and even in several of these respects, we are nearly equal to them. While, as regards quality, truthfulness of work, and economy of cost, in almost every instance we are greatly in advance of them. Indeed, our only competitor of importance, as we have already remarked, is France; neither Switzerland, our former rival in narrow ribbons, nor the Rhenish towns, if we except low-priced narrow and broad velvets, can even approach us, either in the beauty, finish, or general utility of the articles enumerated.

In the supply of the raw material we have a decided advantage over the Continent; and, if we except a certain portion of the finest quality of French grown silk, an almost unlimited command over the productive resources of the world. In one instance, indeed, we have the supreme control. We procure the silks of China in abundance, partly as balance in return for exports to her markets, and partly through the speculative spirit of our merchants. In short, we are the great entrepôt for the raw materials of the Celestial empire, and therefore have a decided advantage over others, as far as the consumption of those materials is concerned. The silks of Brusa and of Italy are governed by the same circumstances, and find their way here on nearly the same grounds. And even the silks of France, which are generally forestalled by her own manufacturers, have recently been largely imported here, as the only market where they could be disposed of to advantage, though that may be attributed in some measure to the disturbed state of the country. In peaceful and prosperous times, however, she generally consumes her own produce; still, we are enabled, by the growing demand of our manufacture, to consume any surplus that she may have to dispose of. But the production of India, which is somewhat extensive, is comparatively under our own control. For these advantages we are indebted to our vast industry, to the amount of capital at our command, to our mechanical skill, and to our superb means of transport, which may be said to embrace every point of the trading and civilized globe. There is, also, another advantage arising from our mechanical skill especially deserving of notice, which we have acquired within the last fifteen or twenty years, viz., the power of throwing the raw material to great perfection, as compared to either France or Italy. We are indebted to Royle of Manchester for this improvement. His machine for throwing silks, which may

be seen in the machinery department, has materially advanced the manufacture of this country, and rendered us comparatively independent of the Continent. Before that invention was practically worked, we drew our principal supply of thrown silk from abroad; and, as a high duty was imposed upon its importation to protect the throwster, whose clumsy and expensive mode of throwing was a premium in favour of the foreigner, we could only procure the finer qualities of silk at a comparatively high price. Not only were we rendered independent of France and Italy for the bulk of our supplies by the improved machinery alluded to, but it enabled us to enlarge the field whence we drew them, by bringing the inferior-priced silks into more general use, and to that extent reversed our manufacturing condition. Immediately that machinery of skilful construction was applied to the general qualities of raw silk, a great stimulus was given to the manufacture, both here and abroad, but especially in this country. It was a great advantage to the English manufacturer when we had mastered the difficulty of preparing the raw material, for the invention to which we have alluded could turn out the coarse and less-carefully cultivated silks of China, India, and Brusa, in almost as good condition as those that had passed through the mills of Vauconson and Turin. Indeed the latter could not have thrown the silks of India, with their soft and flabby texture, to any marketable advantage, nor those of China and Brusa, in their ordinarily matted condition, with the same facility and effect as they could manage the clean and healthy production of the worm of France and Italy. Nothing less than the invention just mentioned could have removed the impurities which too frequently deteriorate the raw material of eastern growth—the *fluff*, for instance, which in several instances tenaciously adheres to the silk throughout the subsequent stages of manufacture, and which formerly precluded it from the better class of goods. Machinery, in this instance, gained us an immense step—and in this direction, instead of using the French or Italian silks exclusively for our warps, in the general and higher branches of the manufacture, we were enabled to run a thread of China or Bengal with a thread of the former; and in its organized state it would sometimes prove superior, especially when a thread of the fine-nerved China was run with the best Italian; while in the lower qualities it was manifestly of the first advantage, as the high price of the former silks almost entirely excluded them from general use. Let the reader imagine a warp of silk weighing, for example, six pounds, and worth thirty shillings per pound, which it would be were it all Italian or French, estimating

the latter at the lowest price; but if we are enabled to throw a thread of Bengal silk worth about nine shillings, and another of China worth about fourteen shillings, with one of Italian, so as to organize the warp of three different qualities, then the price of the manufactured article would be reduced almost one half, as far as the raw material is concerned. Herein lies the advantage which we have acquired by the improved process of throwing; and to such an extent has it been carried of late years, that our Continental neighbours are obliged to draw their supplies of thrown silk, for the more economical branches of their manufacture, from this country. At this time, even the waste silk is bought up in France, sent over to England, and returned in a thrown state; and although a duty of two francs the kilogramme is imposed upon its re-introduction there, it is cheaper and better than any thrown in the best establishments of our neighbours. We have said that we have only one rival of importance in this branch of manufacture, and a few words upon the causes that have operated to produce this superiority will render our subsequent observations upon the several articles exhibited more intelligible.

The silk manufacture of France has always ranked amongst the most perfect branches of modern industry, and has given her hitherto a commanding influence over the markets of the world, as regards the consumption of that beautiful fabric. The quality of the raw material which has been obtained by the minute attention paid to the cultivation of the worm, may be cited as one of the principal causes of her present excellence in this branch of manufacture, and the application of her highly-cultivated taste, both in the combination of colours and the beauty of design, in all its detail, may be cited as another; yet, in spite of these advantages, the superiority of France is gradually diminishing, and may be said to consist in taste alone, confining the meaning of that term to the arbitrary *prestige* of the day. Of this fact the French themselves are sensitively cognizant.

"The time is not far distant," says the intelligent writer of an article in the *Annales de l'Industrie de la Soie en France*, a publication of acknowledged merit, "when France had the monopoly of the manufacture of silk. People came from all parts of the world to purchase the productions of Lyons, St. Etienne, Nismes, and St. Chamond, both figured and plain, whether of the most sumptuous or of the simplest quality. Unfortunately the field of industry requires constant and vigilant attention, and, with all our energy, we have competitors as it were upon our own ground, for England, Switzerland, Belgium, Prussia, and Austria even, have entered the arena

against us. *But it is from England that we have most to dread*, for she draws from her vast colonial possessions the raw material in such abundance, and at so much cheaper a rate than we can command, that the most fatal rivalry is to be expected from her. There are different means, it is true, of producing an article cheaply—the perfection of machinery and the excellence of our workmen; but the most important of all is the abundance and cheapness of the raw material, and it is impossible to sustain, in the long run, the struggle for supremacy, or even equality; and the moment we cease to be supreme, or, in other terms, lose the *prestige* of fashion, which exercises so powerful an influence over demand and supply, we instantly become inferior, unless we are placed upon a par with our competitors in this respect. But in France the supply of raw silk has not kept pace with our manufacturing demands, and almost every year we are obliged to import from fifty to sixty millions of kilogrammes from our rivals; it is therefore impossible to maintain our ground unless we adopt a different course, by producing a supply from our own soil equal to the demand of our manufacturers.”

Vain and fruitless effort! The cultivation of silk in France is limited, and must necessarily be so from the insufficiency of capital, and from the repulsive and unhealthy condition of her landed property. So long as that country is afflicted with the law of a compulsory bequest of property—the greatest curse ever inflicted upon an agricultural people, as it leads to a continuous *morcellement* of the soil—there is no hope of a profitable and healthy cultivation of any kind whatever. And, even supposing capital were abundant in France, and the soil in the most healthy and vigorous condition for the growth of silk, still it would not be policy to stimulate the growth of the latter beyond the point when it would yield the *minimum* of profit for the *maximum* of outlay; for the silks of France, from their fineness of texture and their comparatively high price, can never equal for general purposes those of China, nor even the best qualities of Bengal and Brusa. In point of quality there can be no question of the superiority of the raw silks of France; but that superiority has been considerably diminished by the improved process of throwing, to which we have alluded, and which has considerably increased the demand for the inferior qualities of the raw material. France herself is fully alive to the importance of using the inferior silks in her manufacture, and has latterly become a large importer of Chinas and Bengals, which she draws principally from the stores of this country.

In order to estimate the progress of the silk manufacture of England, and its chances of competing with its skilful and ingenious rival, both at home and abroad, we must take a cursory glance at the nature of our imports, both in a raw and manufactured condition. Since the duty upon the importation of the raw material has been abolished, the manufacture has taken a surprising start, and numerous factories have sprung up in various parts of England and Scotland, whereas formerly it was almost exclusively confined to Spitalfields. The official value of raw and thrown silk imported into Great Britain, in 1826, was *one million and a quarter odd pounds weight*, which equalled about one-third the consumption of France; but in 1847, the year preceding the Revolution, which greatly disturbed the whole manufacturing industry of the latter, the relative consumption stands thus:—

France, 1847.		England, 1847.	
Home Produce	. 2,100,000	Imported	. 5,106,200
Imported	. 2,230,000		
	<hr/> 4,330,000		

Relying upon these returns, which are derived from official sources, it appears that our manufacture of silk has increased nearly four-fold within the short space of twenty years, while the increase of our neighbours has scarcely exceeded one-third. There is also another feature of importance in these returns, namely, that the consumption of France exceeds her own production by more than one-half: she is therefore dependent upon the general markets of the world for the surplus. These figures speak volumes. If we refer to the imports from France, there is a change of an equally striking nature as regards the manufactured article. Formerly, a large quantity of plain goods were imported by us; at the present time there are but comparatively few, and those principally of the richest and most exclusive class. The reason of the change is obvious. We have made great improvements in the manufacture of silk, at one time through the medium of more skilled processes of preparing the raw material, combined with the use of steam as a motive power; at another through the ingenious device of altering our reeds for the warps (this, we believe, is confined to Manchester); in short, our manufacturers have left no stone unturned to accomplish their ends, and the result proves the foresight and accuracy of their aim. There is, perhaps, no branch of manufacturing industry which exhibits more striking proofs of the power of capital, when energetically and judiciously directed, than that of silk. By these means we are enabled to supply neutral

markets to the great disadvantage of our former rival, for within the last few years our exports of plain silks to America have considerably exceeded those of France, and are gradually encroaching upon her even in the rich and fancy departments. And even to France herself we are enabled to export manufactured silks, which she receives with some reluctance, as it clearly demonstrates the marvellous power of our manufacturing machinery, and how little chance she has of competing with it. The ordinary linings used for her hats, for her dresses, and for other common purposes—such as Persians, sarsnets, &c.—are the produce of the power-looms of Macclesfield and its adjacent neighbourhood; and the greater portion of her peasantry, and even the women of her *Halles*, decorate their heads with the corahs of India, after the latter have gone through the process of our cheap printing. And, relying upon the evidence of an intelligent witness on the Patent Law Report, alluded to elsewhere, the shopkeepers of Lyons are even importing our plain Gros-de-naples. Still, it must be allowed that, however sharply we may contest with France this queen of her industries, in all matters appertaining to taste, in its most refined condition, she still keeps in advance of us. We must bow the head to her in this respect, as she amply deserves the recognition of superiority. Where is her equal in beauty of design, in arrangement of colours, and in the high finish of workmanship? No loom in England, nor on the Continent, can come up to her in these important respects. True, we imitate her closely, more closely indeed, on the whole, than any other nation; yet, it must be confessed, we are behind her. The shuttle must resound for some time to come in the busy hive of Manchester before it can silence that on the banks of the Rhone, were it, indeed, a necessity that the one should silence the other; but it is not, and this metaphor is simply indulged in to measure with comparative accuracy their relative distance.

A quiet walk through the Exhibition, and a careful examination of the respective contributions of France and ourselves, will fully illustrate the meaning of the preceding observations. Let us glance at the richer portion of the respective contributions first. What can possibly surpass the beauty and finish of the Alhambra Robe, marked with the name of Charles Candy, who has done, perhaps, more than any other man of the present day to stimulate the genius of the French manufacturer, by his own prolific yet practical taste? There you may observe the chaste harmony of colouring, and the felicity of design, which generally characterise the highest class of French silk

productions. With comparatively limited means the richest effect is produced, which is the greatest triumph of industrial skill. The shades of yellow are so admirably dispersed over the figure, and so ingeniously arranged, that the surface seems like a stream of golden light, which may be occasionally seen on the horizon, at the going down of the sun. The watered ground is also an effective relief to the brocaded surface, much more so than though it had been plain. This, to our mind, is the *chef d'œuvre* of skilful weaving. There are others of a similar class dispersed through the Lyonnese contribution, more or less partaking of the same qualities, but with no peculiar feature entitling them to a separate notice. The productions of Leleu Freres are deserving of remark, as they exhibit weaving to imitate embroidery, which may be termed a new feature. If it can be effected with comparative facility and economy of cost, it will be esteemed as a valuable contribution to the decorative branch of the art. The colours are exquisitely blended in the design, and the surface of the silk is much smoother, and less liable to soil from friction, than the raised surface of embroidery must necessarily be. In scarfs, handkerchiefs, and the ornamental portions of garments, it may be introduced with great effect; so also in ribbons with similar if not greater success. The embroidered silks of Mire Freres fully sustain the reputation of Lyons. In the coloured *moire-antique* silks France still displays her refined taste; so also in her delicate pearl-whites, and in the richer portion of her coloured satins. Her clean, fine, and nicely-prepared raw material, combined with her exquisite dyes, still secure for her this delicate pre-eminence. Her rich shot ducales, glittering like the corruscation of a sun-beam on the waters, are still the *beau idéal* of refined taste; and her Genoese velvets, as she technically calls the productions of her own looms, are as rich and flexible as it is possible to suppose such fabrics can really be. Nor ought we to omit her clouded silks, both in ribbons and in the broad department, as she has so effectively applied this style for some years past; and she has every right so to do, for it is her own invention, having first applied colours to, or rather printed, the warp before it was woven. Altogether a novel invention, characteristic of her prolific genius.

Apropos to clouded warps, a curious controversy has recently taken place in the Parisian journals on the subject of clouded warps, or chiné silks. M. Blanqui, the well-known political economist, in the course of a series of letters on the Exhibition, indulges in the following remarks:—“In the Lyonnese contribution there is an

article which it would be well to suppress—the plain silks with printed warps, called *chinés*. It is only within these few years that this kind of silk has become fashionable, and it really does not deserve it. This bastard silk, so largely used in robes, &c., exhibits a vague and confused design, which is contrary to the fame of Lyonnese manufacture, so justly prized for the clearness and beauty of its colours. I hope the *chiné* silks will perish; but Messrs. Perrequax and Co., of Bourgoin, and M. Revilliod, of Vizille, both in the department of the *Isere*, have exhibited such beautiful specimens that this kind of silk will be sustained, though the design on the warp is clouded by the shoot, and only meets the eye through a misty medium and a sickly aspect.”

M. Revilliod, somewhat indignant at a member of the Institute going out of his way to decry a peculiar kind of manufacture, replies to M. Blanqui, and as the reply contains an important historical fact or so, we shall cite them here, as they will serve to elucidate the progress and condition of this branch of the manufacture. M. Revilliod remarks after pointing attention to the beautiful robe in the Exhibition which bears the name of Charles Candy and Co.—the *Victoria Robe*:—“In 1823-4, when I was printing at Vizille (in the works of Messrs. A. Perier), my first attempt to print *chiné* silks commenced; I presented some patterns for the curtains of the *l'Intendance du Garde-Meuble*, and an excellent friend, the Inspector-in-Chief, was surprised at the result, and predicted that it would be highly advantageous to manufacturing industry. Since that period I have witnessed four or five periods of success for *chiné* silks, but the most important is the present time, as it has arrived almost at perfection; and I shall not exaggerate when I state that this branch of industry gives employment to from 15 to 20,000 hands, as draftsmen, printers, weavers, &c., &c., therefore, if M. Blanqui cannot prove that these workmen would have been better employed, he has done a serious injury to one of the great interests of the country.”

Such is the spirit of M. Revilliod's reply, if not the precise words, and we fully agree with him that the condemnation of any particular section of industry is more hypercritical than soundly economical, and from a man of M. Blanqui's standing in society, it is somewhat deplorable to witness the expression of it.

The “*Victoria Robe*,” to which allusion is made in the preceding remarks, is what the French call a *tour de force* in silk printing, and it amply deserves the name. The design is peculiarly effective, representing the three kingdoms with their appropriate emblems—the

rose, the thistle, and the shamrock, and what appears to be the happiest thought is the *garter*, with its *Honi soit qui mal y pense* prominently woven, uniting the group into one harmonious whole. The robe was designed by Charles Candy, and bears the name of Messrs. Hitchcock, as its proprietor.

In the furniture department France is especially rich and varied—the damasks and the taborettes of Tourneau clearly proving that Tours has not lost the “cunning” of the weaver’s art. In short, in almost all the higher branches of silk clothing, France may be said to hold the palm of excellence. One word more upon the Genoese velvets. Extending our view to other portions of the Exhibition, and minutely examining the several contributions, we accidentally stumbled upon one that is likely to dispute the supremacy which she has hitherto maintained in the markets of the world. The Genoese velvets, made at Genoa, not at Lyons, in the Sardinian contribution, have made quite an impression on our English manufacturers, so little was such excellence expected from that quarter. The coloured velvets of Chichizola, especially the ponceau or ingrained colour, are remarkable for the beauty of finish, the exquisite shades of colour, and the silkiness of *pile*, which they respectively display. The raw material used in their manufacture appears to have been of the finest and most glossy nature, so clean and clear is the surface uniformly preserved; and the art of dyeing must have reached an excellence unknown even in France, to have produced such beautiful shades of ponceau and blue, which are naturally repellant to a *piled* or opaque surface. This contribution will be examined with great interest. There are likewise in the same department some fine samples of taborets, which will compare with the best French productions, and in one or two respects excel them. In the combination of colours suitable for a peculiar class of furniture, they present an exceedingly happy effect, the tone and shade being more subdued than those of France. The same remark will nearly apply to the furniture ornamentation of Moritz Schopper, of Vienna, though it is not quite so effective. In the Belgian department there is scarcely an article of silk, if we except one or two decent specimens of printed bandannas, but is an inferior representation of the French style of weaving, both in the character, the colours, and the designs. The Zollverein is equally deficient, contributing samples that have long become *passé* in this country, and very inferior in quality, both as regards colour and design. Elberfeld and Creffield have put forth their respective strengths; but, if we except the narrow ribbon velvets

and those of a broader nature, generally used for common millinery purposes, they must rest content to rank after England and Sardinia, at least in the manufacture of silk.

Let us now turn to the foreign ribbon departments. France, as usual, has put forth her best skill, although at first her contribution was rather meagre, and wholly unworthy of her superb taste. We shall direct our attention to the highest class of productions. The specimens of gauze, clouded, and landscape-figured ribbons, are beyond anything that have yet been produced in other countries. St. Etienne is remarkably effective. The ribbons woven by order of Messrs. Pawson, Bradbury and Greatorex, and Leaf, are deserving of studious attention. The artistic effect of the landscapes is marvellous, considering the materials upon which they are wrought, and the fidelity of execution, even to the minutest object, must excite the wonder of the spectator, even though he be initiated in the mysteries of the craft. One ribbon, designed for Messrs. Leaf, is peculiarly rich; the ground is green, and the figure is a golden sheaf of wheat, both of which are truthfully and richly depicted. The portraits of the Queen and Prince Albert are more curious than interesting, as regards weaving; but the laced and clouded ribbon of Tuvée, of Paris, excels anything of the kind that we ever saw. In short, in the richer and more artistic class of goods, France is singularly prolific, although she does not appear to have exerted her utmost skill, as we miss one or two first-rate manufacturers of St. Chamond from the list of contributors. There is, also, a contribution from Carl Moering, of Vienna, consisting of clouded and gauze ribbons, which is deserving of attention for the style and the character of the goods. Let us call attention, likewise, to some printed bandannas of Nourry and Meynard, of Lyons; they are singularly effective, though simple in style, consisting of but two colours, the ground and the flowers.

We now turn to the productions of our own country, and first, those of Spitalfields. The specimens of Stone and Kemp are deserving of attentive notice, not only from the fact of Mr. Kemp being chosen one of the Jurors in the Silk Section, but, also, as they present that intermediate fancy class of goods for which England is so celebrated. These goods are not to be ranked with the French either in taste, style, or quality, as the latter are only adapted for the more refined and *recherché* portion of the community; but they are admirably suited for that larger section, which more or less prevails in every civilised country, whose tastes are of a somewhat humbler and more homely nature, yet by no means deficient in the higher qualities of the

former. Messrs. Campbell and Harrison have furnished several beautiful specimens of brocaded *moire-antique* and Jacquard figures, which show that the looms of Spitalfields, under able direction, are capable of contesting for the prize of supremacy with those of the Continent even in the highest department, where taste, design, and complication of colour and figure are involved. The brocaded figure in the contribution of Messrs. Lewis & Allenby is, in our opinion, the richest specimen of manufacture in the Exhibition, not even excepting the Lyonnese. As a work of manufacturing art it stands unequalled. The loom in which this rich silk was woven is now working in the Exhibition, and is well worthy of attentive examination, as it is considered by practical judges the best constructed Jacquard of the day. From eighty to a hundred shuttles were employed in making the silk, to which attention ought to be drawn, and nearly thirty thousand cards, the greatest number yet employed in the production of a single piece of silk. The brocaded flower comprises fifteen separate colours, whereas in chintz patterns no more than five or six are ordinarily used. The design is also worthy of more than a passing remark; it is a study of itself. For beauty of colouring, for harmonious combination of shades, and a good knowledge of botany, there are few more effective specimens, if any, in the Exhibition; and the general result, to an experienced eye, is at once striking and artistic in the highest degree. This *chef d'œuvre* of English manufactured silk was designed by Mr. S. Lewis, one of the firm, we believe, who have so energetically responded to the appeal made to our manufacturing excellence. It is, also, somewhat singular that this is the only firm who are the designers of their own contributions, which include objects in silks, shawl-printing, and ribbons.

The maize-coloured brocade, by the same manufacturers, is also a highly finished and elaborate piece of manufacturing art; the ground forming a chaste relief to the red, blue, and lilac flowers, which are tastefully and effectively blended. This contribution is also a study for the observer who may be desirous of appreciating the refined productions of the loom. The blue *moire-antique*, or watered silk, surpasses the same article in the French department, both in quality, in brightness of colour, and in the beauty of the impression. As regards price, we are now enabled to undersell the French in this article, by at least two shillings per yard, quality against quality, a fact of great importance to the consumer. This interesting contribution bears the name of Messrs. Sewell and Co. Graham's black satins, and watered silk, are the richest we have yet seen, and place that branch of silk

industry fully on a par with the French; the black watered silk is especially effective, from the wavy impression of the water, and the glossy surface, which denotes that it is made of the best materials. This article has hitherto been largely imported from France, but from the method pursued there, in too many instances, of cramming the warp with heavily-dyed shoot, in order to give the silk a rich and weighty appearance, it is apt to crack and slit in all directions, when made into garments, to the evident loss and mortification of its fair owner. Not so the best English make of silk—of which this appears an excellent specimen—the shoot being nearly as fine as the warp, and not weighted with dye, to give the fabric a rich appearance, which is but temporary, as the wearer too soon finds out. In fact, this kind of silk ought to be *faithfully* made, or it will be incapable of enduring the friction of the folds, and the wear and tear of ordinary use. We have minutely particularised this article, as it enters largely into general consumption, and may be termed a stock fabric for both manufacturer and consumer. The next contribution of importance is that of Harrop Taylor & Co., whose plain goods are a credit to the manufacturing enterprise of the age. It is the shuttle of Manchester that provides the home and foreign market with the great bulk of plain and useful silks; and here we have the finest specimens of that class of goods, which have had the effect of diminishing the supply of the French, both here and in America. In colour, in beauty of finish, in truthfulness of work, they are equal to the French; in texture alone, which is easily imparted to the fabric, are they inferior. These silks are mostly made by power, and there must have been great pains taken in selecting and preparing the raw material, for the surface appears as even, and almost as smooth, as a mirror. In this branch we have no competitors; indeed we have no equals. Brocklehurst has furnished a fair sample of the peculiar industry of Macclesfield; so have Crichley and Wardle that of Manchester, in the economical branch. This class of goods is suitable for the million, and their merit depends upon the amount of quality and taste they combine with due regard to cheapness. The embroidered apron of Crichley is an exception to this remark, and is deserving of especial notice, as it is the first attempt that we have seen to bring the elegance and refinement of cultivated taste within the range of the humbler class of consumers. In the Taboret and Damask Department there is a highly creditable show, which fully equals the continental contributions, and, in one or two respects, far surpasses them. The trophy of Keith and Co. presents a series of patterns for furniture ornamentation which clearly denotes that

we have little to fear from the foreign manufacturer, either as regards quality or taste; but the productions of Houldsworth, in our opinion, are deserving of the highest place, not only for novelty of design, but also for the exquisitely subdued tone of colouring which they present. The red and white, and the green and brown damask melanthus patterns are singularly effective; the first is the finest shade of ingrain that we ever saw, and the second is so admirably blended in tint that it almost appears to light up, or rather as though it were only a brighter portion of, the surrounding furniture. The border to correspond with the centre, is also an original idea, and imparts to the damask a breadth and richness which is highly effective. There is no similar fabric in the foreign departments to approach these productions, either in originality of design, or tasteful beauty of colouring. Grosvenor, of Kidderminster, has a variety of taborets, damasks, and brocatelles, all of which are creditable to the taste of the producer, but presenting no peculiar feature beyond what we have already pointed out. It will be a somewhat difficult matter to decide upon the finest specimen of silk furniture in the Exhibition, seeing that there are so many competitors; nevertheless, we would humbly premise that there is an English and Sardinian specimen, either of which ought to bear away the prize.

We shall close our notice of the broad department with a few remarks upon the outlying branches, which have no immediate connection with the manufacture of silk, yet are not wholly separated from it. For instance, there are some excellent specimens of Irish poplins and damasks, from the looms of Fry and Co., and a Jacquard loom, in beautiful order, and in full play, weaving a complicated figure upon a poplin ground, which is an exceedingly attractive object. Again, there are some fine specimens of clouded warp printing, which is a most important branch of the manufacture, by Thomson, Son, and Co., who printed, we believe, the first warp in this country. Bradbury and Greatorex have made an allegorical contribution, in the form of a handkerchief, printed on four sides, with the following pithy quotation:—

“ Quosdem dispersit fastus fratrumque per orbem,
Augusti hic jungit principis auspicium.”

which may be appropriately applied to the Prince-Projector of the modern Temple of Peace.

Andrews, of Manchester, has furnished the Exhibition with a fine assortment of coloured dyes, so have Howe and Hands, of Coventry, which may be compared advantageously with the contri-

bution of Guinons, of Lyons ; the last-mentioned firms have embodied their dyeing skill in hanks of silk, so that it is by no means difficult to judge of the merits of each, however nicely-adjusted an eye to colour is required to pick out the finest shades, when the latter are placed in juxtaposition with each other. There is one thing, however, sufficiently clear, that we are mainly indebted to France for the improved processes of dyeing, and that the art of mixing colours is principally due to her practical chemistry. We ought, perhaps, to except the substitution of safflower for cochineal in dyeing ingrains, which is our own discovery ; and the purples, in which we are peculiarly successful, especially on cotton fabrics. Even within these last few years, France has made an additional claim for originality in the art of mixing colours, by the application of crocus of antimony, which produces, either on silk or cotton fabrics, the most beautiful and highly-tinted rose colour. Messrs. Durant have supplied an interesting specimen of the raw silk in its several conditions, which is characteristic of the power and extent of the manufacture. Here we have specimens from east, west, north, and south : from Spain and Italy, from Greece and Asia Minor, from China and Bengal, and, indeed, from every quarter in which the worm may chance to spin it.

Let us revert for a moment to the manufacture. In the parasol section there are some excellent specimens, principally contributed by Mr. Soper, of Spitalfields, and, as this has become a somewhat important branch of the trade, our peculiar excellence in this respect ought to be pointed out. The black and green specimen is remarkably rich and effective, and ought to have been placed in a better light, so that its real merits might be properly appreciated.

Amongst the novelties which the inventive power of the age has brought to light, and which, through the medium of the Exhibition, are placed before the public, may be named a boot, made entirely of silk, and which requires no lacing. To the fair sex this must be a desideratum, for it combines the comfort of a boot, with the elegance of a shoe. In appearance it is like a rich black silk stocking, and the only portion of leather that we could discern was at the end of the toe and heel, and, as a matter of course, the soles. This original production seemed to attract more than ordinary attention, especially after royalty had minutely examined its properties. If it become general, it will give a considerable impulse to a certain quality of raw silk, as it appeared to be made of that kind which is generally appropriated to what is technically called "sewings." The name of the

inventor is Mrs. C. Smith, Bedford, and the exhibitor, Messrs. Gundry and Co.; and, as compared with the French productions, of which there is a considerable quantity, it seemed the most original and useful thing of the kind in the Exhibition. Another invention, almost as ingenious, in relation to silk, by Messrs. Rogers and Son, of Birmingham, is deserving of attention, as it involves a point of great importance in manufactures—namely, an abridgement of labour. The invention simply consists in weaving silk and beads, at the same time, into a purse, which saves the tedious process of sewing on each separate bead. The saving of time is not the only advantage gained by this invention; there is also a great saving of material, which, perhaps, is still more important.

We now turn to the ribbon department of English manufacture. To speak in the most subdued tone in favour of the foreigner, it must be confessed that the contribution of Coventry, with one or two rare exceptions, which shall be duly noticed, is not equal to other manufacturing centres of the silk trade. We look in vain for the fine gauzes of St. Chamond, and the neat, tasty, yet highly ornamental, fancy satins of St. Etienne. How is this? Did she hang back until the eleventh hour? Nevertheless, she has furnished a few specimens of the strength that is within her, which only requires exertion to manifest itself still more diffusedly. First and foremost, in point of merit, must be classed the productions of Messrs. Cornell, Lyell, and Webster. Their wide clouded ribbon is a phenomenon in manufacturing art, both as regards the blending the colours, the delicacy of design, and the extraordinary width, which must excite the attention, if not the admiration, of our neighbours, who have hitherto contrived to maintain a supremacy in this branch of manufacture. The brocaded ribbons of these manufacturers are equally deserving of notice, especially the water-lily pattern, which has not been equalled in France, either for beauty of design or delicacy of execution. There is also a chintz ribbon with sixteen colours in the shoot, which is nearly about double the number used by the French—a rare specimen of weaving excellence. These productions reflect great credit upon the manufacturing skill of the country, and somewhat redeem the laggard disposition of Coventry, which is too clearly shown in the scantiness of her contributions. The Coventry ribbon, as it is called, is a highly creditable specimen of weaving and designing skill, and almost equals the finest productions of France. The flowers are woven to the colours of nature with a minute, yet exquisite, truthfulness, and the design is one of the most beautiful that can possibly be conceived. There

is no want of art in this country, when fittingly evoked, as the production of this beautiful ribbon clearly proves. There is likewise another ribbon of Coventry production of a rare and choice beauty; it is designed by Mr. A. Lewis, whose artistic merits, as far as we can judge by this performance, are of the most promising order. There is not only a richness of fancy, but there is a judicious keeping of character in the design which is rarely attained by English designers. The Messrs. Cox have preserved their characteristic excellence, both in the variety and in the beauty of their productions; so, perhaps, have Cope and Hammerton, whose Jacquard figures, produced by power, must be classed with the most important phenomena in the Exhibition. The contribution of Messrs. Caldicolt is equally creditable as a specimen of a neat and well-finished style of manufacture.

But there is one manufacturer whom we especially miss from the Exhibition, and, whatever may be the cause, it is to be regretted, to say the least of it. Thirty years ago the Messrs. Ames & Atkinson commenced making ribbons by power, long before any one in this country ever dreamt of such a thing. Their factory at Battersea still stands as a monument of the perseverance of the English character. How many thousands were sunk in that undertaking before it even promised to succeed! and thousands more before it paid the common interest of the capital invested; at length it began to promise better things, and for these last few years its productive powers have been considerable. Having watched the progress of the manufactures, in several branches, for some years past, we naturally took an interest in so bold an experiment as that establishment involved, and fully expected to have witnessed the fruits of its success in the present Exhibition. When we cast our eye over the scanty contribution from Coventry, we are the more chagrined, because there are some respectable contributions of plain goods in more departments than one; and had the present owners of that establishment but sent a few samples of their manufacturing power, it would materially have given weight and character to English manufactures. The plain goods, and the simple figures which are capable of being made in the power-loom at Battersea, are unequalled, either in the English or Foreign department, as regards quality and price. Coventry can show nothing to compare with this class of goods, hence the greater necessity of their appearing in the Exhibition. We have also to record another omission—the silk and glass patented damask of Messrs. Williams and Sowerby, one of the most singular and interesting applications

of silk in the whole range of the manufacture. The silk forms the warp, and the glass the shoot; and with simple contrasts, such as green and white, blue and white, primrose and white, or green and gold, &c., for the glass can be used either in a white or yellow condition, the effect is most brilliant, and, in some instances, gorgeous and luxuriant. For furniture purposes we can conceive nothing to equal it. Her Majesty has a room fitted up with this brilliant fabric; so also have the Duke of Wellington and the Duchess of Sutherland, and, with suitable furniture, the effect produced is rich and effective in the extreme.

The omission of this beautiful fabric was, we believe, the result of a slight misunderstanding between the Committee of the Exhibition and Messrs. Williams; otherwise, the public would have had the benefit of viewing one of the most singular fabrics manufactured in this country.

The contribution of velvets is highly deserving of notice, as it clearly shows that the distance is daily narrowing between our manufacturers and those of the continent. In all that constitutes the quality of the velvet—colour, closeness of pile, and flexibility—we believe we are fully equal to the foreigner: perhaps we ought to exclude flexibility, as the Sardinian contribution presents this feature—one of the most important—in the most effective manner we have yet seen. Examine the backs of these velvets and you will find them as close, as fine, and as flexible as it is possible to conceive; when converted into garments, this quality of velvet seldom creases, generally preserves its rigidity of pile, and presents a peculiar richness even to the last. Now, the English manufacturer has not yet attained this excellence, though some specimens hanging in the silk trophy, marked with the name of Sewell and Co., are very near, if not quite equal to them in this important respect. The specimens presented to the Exhibition by Messrs. Campbell, Harrison, and Lloyd, approach the nearest to the character of those just mentioned, but we cannot meet the foreigner on the ground of price, for the Lyonese, the Sardinian, and the Crefield velvets have to endure a duty of fifteen per cent. upon importation, and yet meet with a considerable sale in our market. Upon minute examination and inquiry we find that the Sardinian velvet marks a difference still wider between the English and continental manufacturer, than the Lyonese or the Crefield, so that we must not relax in our energies, seeing that the former possesses no greater advantage than ourselves as regards the raw material, nor indeed so great. In crapes, gauzes,

gauze lisses, and other light fabrics of a kindred nature, we occupy highly creditable ground. The crapes of Grout and Courtauld have long superseded the foreigner in this market; and the lower priced gauzes and gauze lisses have performed a similar operation. In the choicer qualities of crape—aerophanes—where firmness of texture and delicacy of colour are required, France still maintains her superiority, notwithstanding the strenuous efforts we have made in this country to deprive her of it.

Nor ought we to omit noticing, among the novelties in the raw department, the contributions from Austria Proper, Syria, and Hungary, of fine silks, we believe the first imported into this country. Upon examination they will be found to equal the general qualities of Piedmont, both as regards the nerve, the colour of the silk, and the price. In many parts of Hungary the climate is especially adapted for the cultivation of the worm, much more so, indeed, than that of several parts of Italy, for the fine warm breezes in which the insect lives healthily, and the white mulberry which furnishes it with the best food, are more prevalent in the former than in the latter country. It only requires a slight acquaintance with the habits of the worm, its requisite food, and the readiest method of treating it profitably, all of which are easily acquired,—then Hungary would soon become a large exporter of raw silk, which would materially add to her internal resources.

It will readily be inferred, from the preceding remarks, that France excels in the higher branches of silk manufacture, though we are gradually creeping up to her, and that in the intermediate and cheaper departments, with rare exceptions, we have no equals. Where fancy, taste, and elegance are required, there France is, at present, supreme; where utility, combined with beauty are the *desiderata*, we are equally elevated.

CHAP. XXIV.—PRINTED FABRICS.

THE art of calico-printing, or the printing of woven fabrics, has now become of more than ordinary importance, from the singular requirements to perfect it. Taste, chemistry, and mechanism, are all brought into play, in their choicest forms, to perfect the printing of a piece of cotton or woollen. There is perhaps no one branch of industry

that has given a greater impulse to the ingenuity of man, that has quickened his intelligence in a more remarkable degree, than the art of imprinting colours upon woven fabrics. The secrets of nature have been explored, the mysteries of science revealed, the mighty power of machinery developed, and all the ends of the earth literally brought together in a piece of printed cotton. From the pod in its raw state, to the rag-bag in its used-up condition, a really interesting chapter might be written upon a piece of print.

It does not, however, fall within the scope of this volume to detail the processes of industry; nevertheless, we shall occasionally give a cursory sketch of those which are peculiarly interesting, especially when it is the result of our own practical observation.

We have said that the requirements to perfect a piece of cotton-print have imparted to this branch of industry a more than ordinary interest. The following sketch will corroborate the remark:—A large print-work consists of a mechanical, a chemical, a designing, and a printing department. The chemical is, perhaps, the most important of all the departments, as it requires a good practical knowledge of chemistry to become a first-rate calico-printer. Not only must he study the nature of drugs, and their effects when combined, but also the nature of the vegetable fibres of the cloth, and the degree to which they will retain, or combine with those drugs. The difficulty, in a great measure, lies in selecting the colouring-agents which will impart to cloth the same tints as the design exhibits. Another difficulty consists in combining the agents so as to make a “fast” colour, which is considered of great importance in the best establishments. There is therefore attached to all the great print-works, a good practical chemist, having a laboratory fitted up with the required apparatus for making chemical experiments. Every thing is at hand, from the drug in its raw state to the last new work on chemistry, descriptive of the most recent inventions; and it requires a mind of constant application, and of remarkable aptitude, to keep pace with the ever-accumulating knowledge of the times. The colour-house, with its boxes, jars, bottles, &c., can easily be imagined; but the vessels heated by steam, the mixing-barrels, the crushing and grinding apparatus, all of which are indispensable to cotton-printing on a successful scale, must be seen to be appreciated.

The mode of printing cottons combines the methods employed in paper-staining, press-work, machine-printing, and colour-printing. Every fabric receives its pattern from either a piece of metal or a piece of wood; each substance having on its surface a copy from the coloured

drawing on paper. The wood blocks measure about twelve inches by seven. The face of the block, upon which the design is sketched, is a thin stratum of sycamore, upon a commoner wood, the surface being smoothed to the finest state, and the parts left prominent which are to print the pattern. When very fine lines are required in a pattern, little slips of copper are let in, being placed at an equal height, and forming the printing surface, as the wood is soon liable to wear away. Pieces of felt are occasionally introduced to fill up the interstices between the coppers, whenever a broad patch of colour is required. One block can only print one colour; and, if there be five or six colours on a design, it requires the same number of separate blocks to complete the pattern, with this condition, that the raised parts in each block must correspond with the depressed parts of all the others.

The block method was partially superseded by the copper rollers, which came into use about 1785. The device, or design, is engraved upon a copper roller, or hollow cylinder, from thirty to forty inches long, five inches in diameter, and half an inch thick. These rollers are carefully smoothed on their surface, in order to receive the most delicate impressions of the design. The exact circumference of the cylinder is taken by a piece of paper, and on this paper is copied the design, so adjusted that exactly one repetition, or a number of repetitions, of the design may occupy the entire width of the paper, and consequently the entire circumference of the cylinder. There is a separate cylinder for each colour, so that the paper receives only that part of the design which is to be printed in one colour. The device is slightly marked on the surface of the copper, by being transferred from a waxed paper; and the cylinder then passes into the hands of the engraver, who completes the impression with his tools. But this method, like the preceding, has been improved upon by one which is now in general use. Mr. Lockett introduced, in 1808, the principle of multiplying steel plates. A small soft cylinder is provided, about three inches long by one thick, and this cylinder is engraved with so much of the design as its surface will contain. It is then hardened, and made to give an impress to a softer cylinder, the device being raised on the second cylinder instead of sunk; the second cylinder is then hardened, and becomes the instrument for impressing on the surface of the large copper cylinder the whole of its device. The advantage gained by this process is very great, as the surface of the steel cylinder is not more than one fifth as large as that of the copper cylinder, consequently there is a considerable diminution of the engraver's labour.

There is likewise a mode of printing fabrics, not extensively in use, analogous to stereotype-printing; and, for some patterns, the rollers are engraved by a kind of aquatint, the electrotype process being also occasionally used for the same purpose.

We shall not enter upon the art of dyeing, or the process of mixing the colours, as the secrets of the laboratory alone would fill a volume; but a few remarks upon designs may not be uninteresting, especially as it is now an improving branch, upon the excellence of which the success of cotton-printing in a great measure depends. The art of designing in this country had retrograded, until the passing of the copyright act in 1840, which gave a fresh stimulus to it, by employing a higher class of art, and giving it a better remuneration. Formerly we had quite a school of art devoted to that useful occupation, and the designs of several distinguished artists are still remembered with admiration. Raymond, Wagner, Kilburn, and Edwards, may be regarded as the old masters of the English school of calico-printing, when pattern-drawing was elevated to the dignity of a fine art; and, though the art of printing, since that period, has made gigantic strides, and is now one of the most beautiful and refined of the chemical arts, the art of designing retrograded until the period just mentioned. France has studiously cultivated the arts of design, and advanced its professors to the rank of gentlemen; here, on the contrary, with some exceptions, it has been degraded to a mechanical employment, and rated at weekly wages. France has a species of industry, in consequence, to which we have no claim—the production of designs for exportation. The demand for the latter is considerable, and has been rapidly increasing. Many of the principal houses in this country are regularly supplied with patterns from Paris, and some have designers there wholly employed in their service. Small as is the print trade of France compared with that of England, there were in Paris ten times the number of public pattern-drawers that were to be found in London or in Manchester. Some of these establishments are considerable, and employ from ten to fifteen designers each; and a talented designer there receives from eight to ten thousand francs a year, more than twice the sum paid to similar talent in this country.

The art of calico-printing was introduced into this country towards the close of the seventeenth century, and increased considerably during the succeeding eighty years, when several small but successful establishments were in and around London. At this period the manufacture was transplanted to Lancashire, where it received, in common

with other branches of industry, an amazing impulse from the inventions of Arkwright and of Watt. The productions of the London printers were copied in Lancashire, and poured back in the market of the metropolis in such abundance, that the former were driven to seek for protection against their provincial pirates; and the act of 1794, which gave them three months' protection, was passed by the legislature. The town printer, by this law, was protected in his own market, during three months of the principal demand in spring, and a corresponding period of autumn; but the favourable locality of Lancashire, furnishing cheap labour, cheap fuel, ample water-power, and conveyance to every part of the globe, in spite of the protection granted, finally absorbed the whole of the London trade, except one small remnant, which still exists, sheltered in a great measure by its superior taste and fancy.

At that period, it is questionable whether France was superior to us in the art of imprinting colours upon fabrics; but the isolated condition of that country, as regards transmarine communication, threw her upon her own resources, and consequently rooted that fine chemical knowledge which she has since cultivated with the most sedulous care. On the return of peace, she therefore found herself in advance of all Europe in the art of cotton-printing, and has managed, by dint of her industry, and by the strength of her genius, still to keep a-head of it. The refinement of her taste, the elegance of her designs, and the results of her skilled education in the arts and sciences, have secured for her this advantage. Nevertheless, we perceive the symptoms of decline manifesting themselves in a similar ratio to the silk branch of manufacture, and from precisely the same cause—namely, the impossibility of maintaining a superiority in the highest branch of an industry while the lower branches are not in a corresponding condition. Although France still excels us in the highest branch of cotton-printing, and her productions maintain their supremacy in our market, still, during the last eight or ten years, she has been comparatively stationary, when measured by the progress which we have made in the same period of time. Neither Rouen nor Mulhausen can compare with Manchester or Primrose, either as regards power of production or the order and arrangement of their respective establishments; in one thing only do they excel the latter—in beauty of design and charm of colouring; in almost every other respect they are inferior to them. The establishments of England indicate power and progress; those of France, on the contrary, denote perfection and approaching decline.

In a work of small compass, but of great value,* by an old and valued friend, whose practical experience was almost unequalled during his day, we find some remarks so *apropos* to calico-printing, both here and in France, that we cannot refrain from quoting them :—

“It appears that the whole production of Alsace, in 1827, amounted to 527,935 pieces, of thirty ells each, which is equal to 800,000 pieces of English lengths and widths. This production employed 11,248 hands, not including the manufacture of the cloth, but simply printing it. This gives the result of 71 pieces per head, which, compared with first-class English printers, is rather singular, as the latter produce upwards of 200 per head of the same kind of goods. This limited production, in proportion to the hands employed, is to be found in the *character and habits of the people*, which cannot be changed or moulded at the will of a taskmaster ; nor can an English day’s work be had in France for an English day’s wages.”

Again, as regards the industrial *pluck*, if we may be allowed the term, of the English and foreign workman :—

“In 1814, I saw France before she had time to profit by the industrial skill and improvements of England ; again, in 1817 and 1824, when I examined with anxious care the grounds of the prevailing apprehension that our manufacturing greatness was declining, and that the cheap labour of France would more than compensate her many disadvantages. I returned home with the conviction, since and again confirmed, that the labour of Alsace, *the best and cheapest in France, is dearer than the labour of Lancashire*. I would not aver that an English workman would perform twice the work of one of the same class in France ; but of this I feel assured, from frequent personal observation of their habits, and from long and confidential intercourse with their intelligent manufacturers, that the advantage is *more than twofold* on the side of England. Twenty years ago, the cry was ‘France will beat and undersell us.’ That delusion has passed away, and twenty years’ experience has shown (*Vide L’Enquête sur les Prohibitions*, 1835) that she cannot spin a cotton thread as cheap as we can, with all the advantages of our improvements, and the assistance of English workmen. Of our ability to compete with them on their own soil, their absolute prohibition of our goods is the most convincing proof ; so also is the free admission here of theirs, on a duty nominally of ten per cent., but practically of not more than five. How can they compete with us in neutral markets, when they are unable to do so in their own ?”

* “Notes on Calico-Printing.” By James Thomson, Esq., F.R.S.

And no man could speak with greater weight and authority than the late Mr. Thomson, having raised a large concern principally by his own energy and ability, which at the present time employs upwards of 900 hands, whose average wages—men, women, and children—are 12s. 5½d. each per week, or £30,129 per annum.

The chances, therefore, of France competing with us in cotton-printing are reduced to two—elegance of design and beauty of colouring; in both of which she at present excels us, though not unapproachably. In every other respect we are a-head of her; and how long it will be before we realize the anticipation of Mr. Thomson affords a subject for practical speculation to determine.

“What the foreign merchant wants,” says that intelligent writer, “in a good print, is good taste and good work, for little money; that is, *French taste, with English cost and execution*—that cost and execution which, hitherto, have enabled us successfully to compete with, and to excel all the world. We have long possessed the latter; the former—that is, the *taste*—we are somewhat rapidly acquiring.”

Let us see how far the contents of the Exhibition agree with the preceding remarks, and whether the line of demarcation between home and foreign productions is clearly and precisely marked. Running your eye along the collection of French printed fabrics, which are remarkably well arranged for exposition, and, in this respect, forming a striking contrast to the somewhat smuggled-up and isolated contributions of our English exhibitors, you are at once struck with the rich, playful, yet delicately-subdued fancy which prevails, not only in their mode of colouring, but also in their designs. Minutely examine those fabrics, and the practised eye will discover, that what appears the result of accident, or the combination of shades, is frequently produced by the nicely-balanced sense of beauty alone. The art is to conceal the art, and the French *desinateur* seems to have acquired that art to perfection. Here you will have a dash of blue close to a shade of lilac, perhaps, *à priori*, the most repulsive of all possible combinations; yet the Frenchman has learned the knack of harmonizing them, as though he took a delight in disconcerting all your preconceived notions of combining colours. This, however, is the result of a long, careful, and minute attention to the philosophy of the art, which naturally develops phases of beauty unknown to the comparatively superficial observer. There is no royal road to cotton-printing, nor to the beauty of designing, nor to the harmony of colouring, no more than there is to the science of music, painting, or geometry. All these things must you acquire by the exercise of

your mind, if you wish to keep up with the fleet and fast ones of the earth, ye cotton-printers of England and Scotland. The race now is to the swift, and the battle to the strong, and for the first time, too, on the great industrial course.

The Freres Koechlin, of Mulhausen, seem to sustain their reputation in the muslins, jaconets, &c. There are, in their contributions, some beautiful specimens of printing, which have been executed for the several large London dealers, and to particularise them would appear invidious, seeing that their general excellence is about the same. The colours seem more subdued than ours are, and to compare the designs, when, in the majority of cases, we copy them, almost servilely, would be bordering upon the ridiculous. The same remarks will apply to Gros, Odier and Co., whose productions are of a similarly refined and delicate class. The bold style of Schlumberger contrasts effectively with those just pointed out, yet the harmony of colour with the character of the designs, is carefully preserved. And Hartman Fils is entitled to similar commendation.

The Mousselaïne de Laines of Adolphus Mieg are equally characteristic of the artistic skill displayed in the highest class of goods of that nature, and afford some fine specimens of rich and varied colouring for the study of our own printers on woollen fabrics. Turning to another section of the contributions of France, we were equally bewildered with the luxuriant fancy of design and colouring. Enclosed in a glass-case are a series of scarfs, shawls, and robes, several of them marked with the name of Charles Candy as the designer, stating that they were made to his order. These productions are a perfect marvel in the art of printing. The shades of colour appear as though they had been showered upon the fabric with almost artless profusion, and the film-like texture of the latter conveys the idea of a gossamer-web just dipped in the glittering tints of the rainbow. There are likewise some choice robes from the different London shopkeepers, which appear quite fresh from the looms and printing-houses of Lyons and St. Denys. They are what may be termed Paris productions, having the last new touch, and displaying the most refined taste of the day. These articles have been recently placed in the Exhibition; how far that may be compatible with fair dealing to the English contributors is another question, which we shall refrain from discussing. It is fair to assume that they were placed there prior to the jury having formed their opinions upon the relative excellence of the different productions.

But we must not overlook perhaps the finest specimen of all in

the printed fabric department—the long Barège Satinée Shawl, which bears the name of C. Teakle. It is the contribution of M. Godefroy, of Puteaux, near Paris, the finest fabric printer in France. The great novelty of the shawl consists in the border and body being one continuous pattern, so that there are no cross lines to intercept the freedom and beauty of the design. The colouring is chaste, and truthfully delicate; the design is highly artistic, and the general character of the printing comprises two styles—the cashmere and the chiné, which are seldom seen in combination.

Minutely examining another section of fabric printing, we were particularly struck with the progress made by France within the last few years. The English have hitherto been thought superior to the French in chintz-printing, the latter generally preferring our productions to their own, up to a recent period. In the quality of the cloth we still excel them; but, judging by the specimens in the present Exhibition, it would be wanting in fairness to say that they are not equal to us in printing. Indeed, their colours and designs, like their cotton fabrics, partake of a higher class of art than ours do; witness the productions of Lapuis et Fils, and Schwatz, the latter, especially, glowing in richness of shade and depth of colouring. There, again, the French have brought their exquisite knowledge of chemistry to bear, which in the large character and deep patches of colour required in chintz printing, affords an excellent medium for its display. Nor ought we to pass by the Turkey reds of M. Steiner, in the same department, which are remarkably fine and bright in tone.

We shall now turn to the productions of our own printers, which decidedly rank next to those of France in the higher class of goods, and before the latter in the middling and cheaper kind. And, as regards the other foreign contributors, neither the Belgians, the Ham-burghers, nor even the productions of Elberfeld and the whole Zollverein, will bear a comparison with us, in scarcely any one respect—Turkey reds probably excepted, the Rhine towns having been long famous for that peculiar dye. First, then, in the contributions of Manchester must be ranked those of Messrs. Lidiard, though the general productions of Thomson, Son, and Brothers are fully equal to them. The first appears got up expressly for the Exhibition, there being a single piece of lilac-striped barège, and a single piece of chintz, both beautiful in their way, unquestionably, especially the chintz, which surpasses, for ingenuity in laying on a number of colours, anything yet produced abroad. Both these styles of printing are distinct from those of France, and reflect great credit upon English taste and

execution. The general character of Thomson's printed de laines are equally creditable, so are their printed warps of silks, which we have already pointed out. Hoyles have produced the greatest novelty; their specimen of damask printing is a marvel, having been effected by one roller, which, to produce the same result, heretofore, required two or three. This is a most valuable move in cotton-printing, as it is a great saving both in time and material. The productions of Black, of Glasgow, are also highly creditable, both for the variety and the beauty of the designs and colours. His diagram of cotton-printing is perused by thousands, and is exceedingly interesting; so, also, is the panorama contributed by Manchester. Stein's Turkey reds surpass even the foreign production already noticed in the French section, both in colour and purity. Potter's useful class of prints are deserving of notice for their style and character, especially as they enter so largely into general consumption; and M'Morland's specimens attract attention, from the neatness of taste, and primness of colour, preserved in them. The house of Monteith, the introducers, we believe, of the Turkey-red into England, maintain their reputation in the variety and character of their productions; and J. Medlett and Co. have furnished some well-finished specimens of chintzes. Nor ought we to pass over the rare invention of J. Mercer, which has effected a partial revolution in cotton-printing, and, judging by the specimens exhibited, must prove a considerable saving, both in material and in labour.

In the shawl department Messrs. Swainson are peculiarly effective; in one or two designs they have made a near approach to the French, both in colouring and outline. The shawl printed for Messrs. Lewis and Allenby is a beautifully-designed production, and certainly has no equal amongst the English printed fabrics. In some respects, it even surpasses the French. The pattern is a pine, of the most beautiful cashmere style of art, and in colours and arrangement it is highly creditable to the designer. This shawl exhibits the same features that we have already noticed in those of M. Godefroy—having no break in the border, and the body of the design being continuous, an important and effective novelty in printing fabrics. This beautiful design is the production of Mr. Lewis, and the shawl is printed by Messrs. Swaisland, whose skill is deservedly known. There is a fine yet subdued tone of colouring, which prevails throughout, and the character of the design is highly artistic and original. Nor ought the printed productions of Messrs. Keith to pass without a remark or so, as they equally exhibit the progressive steps which

we have recently made in this beautiful branch of industrial art. The printed shawls of this firm, with the exception just named, are the finest English productions in the Exhibition. The Messrs. Littler have some bold and stylish specimens of bandanna printing, which will compare with the three patterns in the French department already noticed, and even surpass them in the depth and quality of the colouring.

In the chintz section Swainson and Dennys occupy somewhat high ground, their rose and tulip pattern being particularly effective. So, also, do Hindley and Son, who have a remarkably striking specimen of chintz, uniting boldness and simplicity in design, with good taste in colouring. Nor ought M'Alpin's productions to be passed over, especially the reds, which are creditable to his chemical skill, to say the least of them.

In the Paisley department there are some excellent specimens of shawl and scarf printing, but not to equal the French, by many degrees, either in colour or design.

Upon the whole, then, the French excel us in the highest department of printing on fabrics, and we greatly excel them in the middle and lower class of goods; the other continental manufacturers being in arrear of both in almost every respect.



CHAPTER XXV.—CARPETS.

THE manufacture of carpets has made a very sensible progress in this country, even during the last ten or twelve years. It is now carried on in Scotland, and several parts of England, with singular success, and is not confined to any particular spot, as regards the style and character of the manufacture. The Kidderminster carpets as they are called, are more extensively made at Kilmarnock than in the town from whence they derive their name, and the "Brussels" is spreading in all directions, wherever ingenuity and enterprise can turn its manufacture to a profitable account. There is scarcely a house whose inmates aim at ordinary comfort, but is supplied with a carpet of some kind or other at the present day; whereas, about half a century ago, there were scarcely any but the highest and wealthiest classes that could afford to indulge in such a luxury. But so true is this feature in the progress of mankind, that the luxury of one age becomes the indispensable necessary in the next; and, instead of the

affairs of state being exclusively discussed *sur le tapis*,—as the French phrase runs, which simply indicates that a carpet formerly was of too costly a price for any human beings but ministers of state and princes to tread upon,—the common affairs of life are now daily transacted upon it, the article being within the reach of the great mass of the decent and well-to-do in society.

We have nothing as yet, it is true, to equal the magnificence of the Gobelins and Aubusson carpets, but we manufacture a humbler kind, which comes within the range of the larger portion of society, and is equally welcomed by the select and wealthy few, for its general beauty and utility. The Brussels, tapestry, and velvet carpets of England are unequalled by any manufacture on the continent both as regards quality and price, and would command a ready sale in France, were a moderate duty imposed upon their importation; but so long as the latter persists in levying a duty by weight, amounting to about sixty per cent. upon the value of the article, the French people must content themselves with their inferior *moquettes*, which are a humble imitation of our velvet piles, and, from their comparatively high price, necessarily limited to the few.

The carpets of the Gobelins and the Savonnerie are seldom valued lower than from two to three hundred pounds each, some of them ranging as high as five thousand pounds; one, for instance, in the eastern space of the Sèvres department is valued at that amount, which necessarily confines the use of such articles to a very limited circle. This class of goods may be termed the hot-bed produce of the state, being forced, for some purpose not expressly defined, at an enormous cost of labour and capital, but assuredly not for the improvement and extension of the general carpet trade of France,—the style, the character of the designs, and the *tout-ensemble* of the work, placing them far beyond the reach of imitation by the humbler and more useful branches of the manufacture. The next in richness to the Gobelins are the productions of Sallandrouse and Rogier, called the Aubusson and Felletin carpets; they are manufactured in the department of La Creuse, and are both long and short nap. The Messrs. Rogier also produce the velvet-nap carpets, which present an exceedingly rich appearance, though their ordinary price is about one-fifth of those manufactured by the state.

“Unfortunately,” says M. Flachet, writing of the French manufacture, “the general arrangement of our habitations has precluded us from the use of carpets. In this respect we are much behind the English, and even the Dutch. A progress of this kind is necessarily

dependent upon that of other conveniences, and our first step to ensure it must be the suppression of the duty upon foreign wools, in order that our manufacturers may produce cheaply, as well as superbly, this useful article."

It requires but little observation and deduction to arrive at the conclusion that we have little to fear from the competition of our neighbours, but that we have a great deal to learn—namely, the fine and practical taste which they pre-eminently possess. Examine their carpets, wherever there is no limit to taste and fancy, and you will find such a charming combination of colours, and so subdued a tone, that it is scarcely possible for the eye to be disconcerted, however grotesque and bizarre may be the furniture of which they form the natural background. It is comparatively easy to blend the bright and prominent shades of wool, as colour is so largely absorbed by the latter, but to harmonize the pale and subdued tints, so as to form a pleasing contrast to almost any conceivable combination of furniture, is the result of a long-studied attention to the laws which regulate and influence taste.

In this particular, it must be acknowledged, the French are greatly a-head of us, which simply results from their long and careful study of the fine arts, the latter manifesting itself in every branch of industry where taste and fancy are the leading desiderata.

Glancing cursorily at the Exhibition, which contains a singular variety of carpets woven whole, or partly so,—much more, indeed, than it does of piece goods, which, we would premise, should be the especial aim of our manufacturers, we were particularly struck with the improved tone which has been adopted in blending the colours, as it seems now to be understood that a carpet should be a subordinate and not a leading object of furniture, as it forms the base, or starting point, whence we estimate the character and taste of the surrounding objects. Viewed in this light the carpets of Jackson and Graham are entitled to preeminence, as they unite the essentials which we have endeavoured to point out as the indispensable elements of furniture ornamentation, and the chastest style of household decoration. What they call the "London carpet," and the "Moresque design," have all the characteristics of French designing, without their elaborate costliness, and they are the first attempt that we have yet seen to bring the highest class of carpet manufacture within the ordinary range of consumption. The large carpet of Sewell and Co. is, however, equally entitled to notice, and is in remarkably good keeping, both as regards design and colour. The ground with the subdued shades upon it, are peculiarly effective, the artist having a shrewd eye to furniture decora-

tion of a superior order. The bouquets of flowers are equally well arranged, especially as regards colour, the first desideratum in objects of that kind, and the border is also in exquisite keeping with the centre. Nor ought we to omit the elegant display of Messrs. Lapworth; nor the elaborate contribution of Messrs. Crossley and Son, whose tapestry, carpets, rugs, and table-covers form a prominent and attractive object in the Exhibition. Here, again, we remark an improved character of taste, both in colour and design; and, as regards finish, these productions are highly creditable to the skill of the manufacturer whose name they bear. The Felt Carpet Company have likewise some fine specimens of tablecloths. Bright's patent, as it is commonly called, is a novelty in the manufacture of carpets, weaving by power, and printing by a new process, which may possibly open a new path for further adventures; but that must depend, in some measure, upon its "wear and tear" qualities. Watson, Bell, & Co., have furnished some good specimens of their Axminster make; and Templeton, not behind his co-manufacturers, has displayed a richness and variety of colour in his productions which leaves them all behind. The "Descent from the Cross" is a creditable imitation of the rich Gobelins, and the East Indian contribution by Watson and Bell is curious and characteristic, to say the least of it. The blue-ground carpet of Messrs. White and Co. is an effective production; so also is the velvet pile of Messrs. J. K. Harvey, and Messrs. Henderson and Co., are not less happy in the general combination and arrangement of the colours in their contribution.

The three carpets contributed by Her Majesty are interesting specimens of art and industry, especially those designed by Gruner. Of the lady's performance we forbear saying anything; suffice it to remark that the design is highly creditable to Mr. J. W. Papworth.

The Belgians have contributed a fine specimen or so of their manufacture from the establishment at Tournay; the character and quality of the productions hold a kind of middle position between France and England, but much nearer to the latter than the former, especially in design.

While on this subject, we ought not to omit the manufacture of floor-cloths, in which we are particularly successful. J. Rolls & Sons exhibit the largest single piece of cloth that, we believe, ever was manufactured. It measures seventy-five feet by twenty-four, and is without a seam or joining. Smith and Barber have a similar contribution, alike as to dimensions, quality, and style. Each of these contributions reflects the highest credit upon the ingenuity and energy of its producer.

CHAP. XXVI.—THE ETCETERAS OF THE EXHIBITION.

AFTER a somewhat careful and minute examination of each department of the Exhibition, and arranging our observations under distinct and appropriate heads, we found, upon a series of cursory surveys, that there were several objects of great interest that we should have noticed had they fallen in our way in the first instance. We shall now collect these objects into a kind of *Miscellanea*, and give each the notice we intended, irrespective of the order and sequence which would otherwise have been preserved.

The first object of importance is a "Jewel Case in the Cinque Cento style, designed by L. Gruner," and executed by Elkington, the well-known electro-plater. The material is bronze, gilt and silvered by electro-type process. There are copies of Thorburn's miniatures of Her Majesty, Prince Albert, and the Prince of Wales, painted on china and let in the case, besides medallions of the royal children modelled by L. Wyon. The execution, the filling-up, and the general arrangement of the case, irrespective of the external appearance, which is highly artistic and novel, display a nicety and finish of work which excite peculiar attention. This case may be classed with the choicest objects in the Exhibition.

There is another object of great attraction by the same ingenious manufacturers, or manufacturing-artists, as the Messrs. Elkington really deserve to be named, so energetic do they appear in breaking down the barrier which has too long separated the studio of the artist from the workshop of the artizan. We allude to the electro-gold and silver table. The top of the table is an elegant and instructive work of art, designed by Chevalier de Schlick, as the artist is named in the catalogue, and reproduced by the electro-process. There are eight bas-reliefs, illustrating Minerva, Astrology, Geometry, Arithmetic, Music, and Rhetoric; in the centre of these reliefs is a figure of Temperance surrounded by the four elements, and the bottom of the plate contains an inscription which speaks for itself. As a work of art it is an able conception, and, irrespective of the point just alluded to, reflects great credit upon the mind that conceived it, and upon the working skill of those that practically carried it out. The table itself was designed by G. Stanton, a young student in the Birmingham School of Design; and we notice it with pleasure, as it clearly shows that there only requires a facility for the development of artistic ability, and it will readily appear.

A candelabrum in the Cinque Cento style, in scagliola, is a fine

work of art. It was designed by Gruner, modelled by Trentanove, and executed by Remoli. To the curious and fanciful in art it will prove, not only a curiosity, but a great treat. Talking of Roman artists, let us direct attention to the magnificent mosaics from the Eternal city; they are, in their way, truly prodigies of art. The "Ruins of Pæstum," in the eastern nave, is as beautiful as the finest landscape on canvas, and in detail much more minutely worked out. In this class of art the Italians of the present day are unequalled. There are also productions of a similar kind from Florence, which are equally deserving of attention,—particularly a table, which contains the principal cities of Italy in mosaics on the top, the execution of which, we were informed, occupied the artist twenty years. Reverting to a humbler branch of art-decoration, we cannot but draw attention to C. Smith's excellent imitations of marble, and the graining specimens of C. and F. Sewell, both of which are excellent in their way, especially that of the former. The large panel of Jones & Co. is a novelty, as far as material is concerned; the flock-raised colours are somewhat gaudy, when joined and fitted together with gilded frame-work; nevertheless, for certain decorative purposes, we have no doubt that it will prove highly effective. M. Morceau's table-covers in the eastern nave are peculiarly rich, many of them being recent importations; in design, in colouring, and in the combination of material, they are alike deserving of minute attention.

The Fire Escape of Mr. C. Baker attracts considerable notice from the simplicity of its arrangement, and its promised effectiveness. A metal frame, forming half a circle, to which is attached a wheel about three feet in diameter, is fixed into the window sill, and, if the latter be not strong enough, a similar frame is fixed with clasps or hooks to the inside of the window, with a bearing to act as a lever against the front of the house. A rope, double in length to the height of the house, is placed over the wheel, one end being let down to the street, and the other fastened with a belt round the waist of the party waiting to escape from the fire, by which means several can be lowered in the space of a few minutes. There is also a hook, to which a cradle can be attached, for children or females; and, should the flames issue from the lower apartments, or a projecting balcony prevent the gradual descent of the cradle, the latter can be drawn across the street, while descending, by means of a cord attached to the rope near the belt. Firemen and policemen can be easily drawn up to any apartment of a burning house, either to direct the hose on an effective part, or to assist the inmates in making their escape.

The same ingenious individual exhibits a safeguard for servants while cleaning the outside of windows. The same frame as the fire escape can be fixed on the sill; but, instead of the wheel, a frame composed of basket work, canvas, wood, or any other suitable material, is attached to it by means of hooks, and will be found, it is fair to presume, effective for obviating the terrible dangers to which domestic servants are so frequently exposed.

"A Model of Fire Escape, Sealing Ladder, and Portable Scaffolding," by Mr. Osmond Oliver, is deserving of notice, as it may be both economically and humanely applied to several purposes. The novelty consists in its simplicity of action; it can be raised and lowered in an instant of time, so as to establish an immediate communication with all parts of the house, in the event of fire. The inmates of a dwelling might easily escape, were they threatened with extreme danger, by means of this simple and ingenious contrivance; nor would it be less effective for ordinary building and house-repairing purposes, as it obviates the necessity of ladders, and affords great facilities for workmen, whereby a material saving might be effected. The whole arrangement of the "Fire Escape" is simple and compact, and it occupies but little space, though its powers are very great.

Messrs. Dakin's "Coffee Roaster" is a simple but useful invention, and so ingeniously constructed that the injurious effluvium of the berry is allowed to escape, while, at the same time, the fine aroma can be retained. By a simple contrivance the attendant can regulate the heat and test the condition of the coffee at any stage of roasting, which is a great improvement upon the ordinary method. Napier and Sons' "Automatic Balance" for weighing sovereigns is a compact piece of machinery, and attracts general attention. According to the statement of the inventors, five of these machines can weigh 50,000 sovereigns in a day, with the most unerring accuracy. The "Balance" belongs to the Bank of England. The "Recoil Breakwater," close to the latter, in the western nave, is well deserving of minute examination, as it shows by what simple contrivances man may make the rude elements subservient to his purposes. If this "Recoil" effects but a tithe of what it promises, it will be a most provident and beneficial invention. The two beautifully constructed specimens of "Improved Lighthouses" attract great attention. One is by the Messrs. Chance, the other by Mr. Wilkins, a name long identified with such structures. In their construction, by a combination of lenses, nearly the whole of the light emitted from the burner in the

centre, both upwards and downwards, is thrown forwards in a horizontal flame.

Field and Son of Birmingham, have furnished some fine specimens of their peculiar excellence in the manufacture of achromatic microscopes, and of lenses for photographic purposes; and the illustrations which accompany them are fully attestive of their practical power. Kissel's "Bed for Invalids" is an ingenious and humane invention; and Leblond's figures for artists are cleverly constructed, as, in a single piece, you have embodied the whole series of the Academy models. Montanari's Mexican models in wax are interesting; they afford an instructive illustration of a people but imperfectly known, though a great deal has been written and said about them.

One of the manufacturing novelties which denote more than ordinary ingenuity and taste, is the Shawl-cloak of Messrs. Holmes and Co., which has attracted considerable attention. It consists of a shawl being made in a circular form, and then divided into two semicircles, each of which, with a hood joined on, makes a distinct cloak. The result of this invention is, that the pattern is completely preserved all round the shawl, there being no seams; in addition to which, the cloak preserves a more elegant form than one made in the ordinary way, and from materials whose patterns are woven square. The circular shawl of the contributor is a novelty—to which, indeed, there is nothing to compare, either in the French or Zollverein departments.

J. Clarke's "Seamless Cloth Flock" is a novelty among materials for decorative purposes. Its effect is somewhat imposing; and it presents one great advantage—it can be manufactured on the wall of an apartment, without any joins, and the pattern can be diversified to any extent. Its expense is about equal to the first-class paper-hangings; and, according to its inventor, it can be cleaned, re-coated, and re-dyed to any colour, if required. These are manifest advantages, if they can be realized; but practical experience must determine that point. The "Sine Manubrium Brush" is another of those useful inventions which add materially to the common stock of enjoyment in life, and, from its simplicity and effectiveness, must attract attention. But the most effective object, as regards the comfort of the better portion of the creation, is the simple invention of Mrs. J. Smith, of Bedford—"the Symmetrical Corset." Numbers of patents and inventions have been called into requisition for this indispensable article of female attire, and their very number shows their general insufficiency to supply all the requirements of the case. Simplicity of form, facility in use, and effective support, are the three essential points in a

stay. These have been attained in the corset in question, which has a fastening in front, and can be done and undone easily, as no lacing is required. There is also another advantage connected with this corset—it improves the figure while it gives it support, and obviates the inconvenience and evil of tight-lacing. As there is great competition between France and ourselves in the manufacture of stays, and as it is an article of great importance in its commercial, as well as in its sanitary bearings, we have thus minutely detailed the article that seems to attract the most general attention of its class in the Exhibition.

And last, though not least, in the contributions of this class, we must call attention to the Irish embroidery in the case of Messrs. Salomons and Sons, which is deserving of notice for more reasons than one. First, it indicates that industry rightly directed, in the sister country, may be made both profitable and useful; and, secondly, that we are quietly attaining an industrial excellence in which one or two of our continental competitors have been long supreme. In Switzerland especially, and also in France, the embroidered excellence of the materials for dress are exceedingly beautiful; while in Scotland we are only just acquiring that excellence; and the contribution in question, besides others from the same quarter, clearly shows that Ireland will not be far behind in its acquisition.

There are two contributions to the Exhibition which do not meet with the attention to which they are so justly entitled—the gates of the Coalbrook Dale Company, at the northern extremity of the transept, and those of Messrs. Cottam and Hallam, at the southern or main entrance. In style they are essentially different; in execution they appear to be upon a par. There is a fine easy flow in the outline and arrangement of the Coalbrook Dale Company's gates; in those of Messrs. Cottam and Hallam the opposite qualities of art prevail—being angular, and somewhat formal, though highly classical in their general structure.

Amongst the singular variety of boats, ships, wherries, oars, and every conceivable variety of marine and fresh-water structures for use and for pleasure, there are several beautifully-modelled productions in almost every department, and some of them entirely new. The Admiralty have contributed a fine model of a frigate, which is placed in the transept, besides others in the appropriate space for such objects. An eighty-gun ship, however, by a Mr. W. M'Laren, seems to attract considerable attention, from its minute and excellent workmanship, and from the fine outline of its general structure. It seems to have

been a work of love, rather than of labour, as there appears so many indications to that effect here and there, in the finish of particular parts. This vessel attracted the attention of her Majesty and the Prince, since which every spectator, as a matter of course, has examined its peculiar excellence.

The contribution of Messrs. Mollady and Co. is highly characteristic of the enterprise and ingenuity of portions of our manufacturing interest in meeting the demands of public taste. The hats which this firm exhibit furnish specimens of the finest quality, and of the greatest variety of shape that we have yet seen; and, as there is great competition with the foreigner in this article, it is doubly interesting to observe that we are fully equal to sustain it. Here may be seen the "Ventilated Cork Hat," so light in its structure that we are scarcely conscious of its pressure on the head; together with the "Zephyr," the "Drab Simbrino," the "Felt Rustic;" and, to crown all, there are specimens of the different stages through which the hat passes, from the first rude form up to its most finished state. Not only in this case, but in that also of Messrs. Eveleigh and Son, may be perceived the advance which we have made in this important and highly useful branch of manufacture.

PATENTS.—PATENT LAWS.

IF any stranger had arrived on our coast with the express view of studying the nature and structure of our mechanical excellence, which forms the basis of our national greatness, he would naturally conclude that we preserved that excellence with the greatest care, that we nurtured it with a parental tenderness, and that every individual effort to augment its strength would be hailed with delight, and specially protected from injury or aggression. "The improver of mechanical excellence," he would naturally say, "must be an especial favourite, the laws for his protection must be especially framed, for improvement or invention is civilization. The inventor is the author of all the combinations that God has not made—he is the continuer of His work, the promoter of all advancement. The inventor is the first man in the world, for he makes something out of nothing, gives a value to what was valueless, motion to inert masses, power to weakness. Watt, in imprisoning steam in a cylinder, has given to England fifty millions of hands; Nature had not furnished her with this immense appliance. All which exists on this side brute creation is invention. Inventors seek out and find new processes, simplify mechanism, diminish bodily labour, shorten distances, explain phenomena, subdue the elements, and transmit them tractable and powerful into the hands of their fellow-men. They are the head and soul of a nation; without them there can be neither progress, nor riches, nor power. The country which possesses the most of them renders its neighbours tributary and subservient to itself. Other nations will buy its books, its pictures, its designs, its colours, and its stuffs; they will also require its laws, its regulations, its plans; they will visit its monuments, its depositories, its schools—for all this is so much invention. Mind works equally in the arrangement of a chart or a poem, a picture or an art; while one genius combines parts of machinery, another arranges hemistichs and rhymes, lines and colours, black and white. The people who have no contriving powers are savages, and remain so until the inventor civilises them. An idea is the property of him who first possesses it. The people in the enjoyment of all these powerful elements must have good laws, otherwise individual enter-

prise and individual genius would not be so largely displayed, therefore I shall studiously examine those laws."

Were our friend to soliloquise in this manner, he would commit an egregious blunder, for our laws relating to Patents appear to have been so framed that inventions should be specially discouraged, as though they were the evil genii of society, instead of being its creative and alimentary agents. Our law-framers seem to have treated inventions as objects to be dreaded, but not wholly avoided; and divining their thoughts by the spirit of their handyworks, or, in other terms, measuring the motive by the action, there would appear to have run some such idea as this through their heads—"Inventions are abominable, detestable things; we cannot possibly prevent them from appearing, but we will do all we can to 'crib, cabin, and confine' them in the meshes of the law, so that they may be discouraged as much as possible." The spirit of the law has had precisely the effect here implied, whatever may have been the intentions of the makers of the law. Let us cite the latter, with a few prefatory remarks upon the "Lights" who have diffused its radiance among us, and see how far their views have been in accordance with its virtual operation.

Patents for inventions have been defined as "Monopolies granted to inventors or introducers of new and useful improvements in the arts and manufactures," * securing to the patentee, for a certain term, the advantages derivable from his invention, in consideration of his giving it up to the public at the expiration of the period guaranteed by the patent. Hawkins defines a monopoly (Pleas of the Crown) to be "an allowance by the Sovereign to any person for the sole making, selling, &c., anything, so that no person be restrained in what he had before, or in using his lawful trade;" and Lord Coke states that "the reason why such a privilege is good in law is, *because the inventor bringeth to and for the commonwealth a new manufacture, by his invention, cost, and charges; and therefore it is reasonable that he should have a privilege for his reward for a convenient time.*" (3 Inst. 184). The statute 21 of James I., cap. 3, s. 6, limited the period for which patents should be granted in England to fourteen years; "and upon that statute," says Godson (Treat. on Patents, p. 6,) "is founded all the law upon patents for inventions." An act, however, was passed during the reign of William IV. (5 and 6, c. 83,) to enable patentees to amend their specifications, and obtain an extension of their patents

* Vide some able Observations on the New French Law relative to Patents for Inventions. By Charles Egan, Esq., Barrister-at-Law.

	£	s.	d.
Brought over,		106	11 8
	£	s.	d.
Expense for Scotland . . .	79	10	5
Specification Stamps . . .	5	0	0
	<hr/>		
Expenses for Ireland . . .		84	10 5
		128	5 11
	<hr/>		
Total,	£319	8	0

So that a patent for the United Kingdom costs £319 8s., irrespective of other expenses.

The true solution of the enigma, however, is contained in the following remarks of Professor Amos :—

“It *would* be remarkable that patent rights, so infinitely important in a country the most distinguished for its manufactures of any in the habitable globe, should be governed in the present day by a statute upwards of two centuries old, couched in very obscure terms, and conceived in an age when the mechanical arts had scarcely emerged into existence or estimation. It *would* be remarkable, but that we know, that legal reforms have kept so unequal a pace with national improvements, that we can scarcely turn on any side in our legal enquiries, but that we find ourselves cramped, and laced, and impeded by the swaddling clothes of an infantile jurisdiction.”—*Lecture Lon. Univ.*

Let us glance, for a moment, at foreign legislation on this important subject.

In America, patents are usually granted for a term of fourteen years, the tax being, to an American citizen, thirty dollars; to a British citizen or to any other foreigner, three hundred dollars.

In Holland, patents are granted for five, ten, or fifteen years, at the option of the inventor. The charge depends upon the nature of the invention; but if the fees be not paid within three months, the patent becomes forfeited.

In Belgium, a recent law fixes the utmost grant of a patent at ten years, unless in some particular cases. On applying for a patent, the Belgian government usually requires the deposit of a small sum, varying from ten to one hundred francs; the remaining portion of the tax is not required for two years. The invention, however, must be carried into effect in Belgium within the period specified in the patent; and the cost, we believe, varies from six to twelve pounds.

In Spain, the cost of a patent varies from ten to sixty pounds; in Austria, it is six pounds, with 11s. 8d. a year additional, and in the German states the cost is about the same as in Austria.

By a recent law (1845) in France, a patent is granted for five, ten, or fifteen years, according to the desire of the patentee. The application must embrace a correct description of the invention, accompanied with two copies of the requisite drawings, and the applicant must strictly comply with all the other regulations of the law. Moreover, unless the patent be carried into execution within two years from the date of the grant, it is liable to be cancelled; or, if the invention is suffered to remain inoperative for two successive years during the existence of the patent, the privilege likewise becomes jeopardized.

The amount of the fees payable for a patent in France depends upon the duration of the grant, viz. :

For five years,	500 francs.
For ten years	1000 „
For fifteen years	1500 „

And these premiums are to be paid by annual instalments of 100 francs, under penalty of forfeiting the grant if the patentee allows one year to elapse without discharging the same.

Hence the number of patents taken out in France greatly exceed those in England, to which, in some measure, may be attributed her inventive power; while, on the contrary, the expenses attendant upon taking out a patent in England operate fearfully against hers—for who will plough and sow to reap but a tithe, or perhaps the gleanings of his field? Who will plant a tree if another is to carry off the fruit? These questions are answered in the words of an able writer upon the subject of patents:—"It is to be feared that many valuable inventions never see the light, owing to the influence of the present patent laws. The most inventive men are not always the most opulent. It is no uncommon thing for a person to spend many years, and perhaps his all, in maturing an invention which may fully answer his expectations; and, after he has brought it thus far, he must make up his mind either to publish it and let others reap the benefit, or to cancel and probably consign it to oblivion. There is no alternative if he be unable to raise £500 or £600, which go principally into the pockets of officials, who do nothing for it and who do not need it. Thus it is a lamentable fact, that the very laws intended for the protection of inventions have, in too many instances, quite the contrary effect."

Were the patent laws of this country assimilated to those on the continent, the inventor could make better terms with the capitalist, who too frequently mulets him of his invention. It is the sense of

injustice that constitutes the sting in the patent law. It leaves the poor man unprotected, and gives weight and power to his rich opponent. The inventor, it is true, must be more or less at the mercy of the capitalist, but not so grievously as he is at present; for no invention can be successfully carried out without the aid of capital, but it may be disposed of on more equitable terms than the present law permits. There is the real grievance. In our first edition we suggested the policy of establishing a Museum of Patents, which could easily be effected were models and specifications of all inventions deposited there, and what would be more instructive than a series of inventions, showing practically the progressive stages of art, of manufactures, of agriculture, and of every species of industry, of the present age? We can imagine the more intelligent class of mechanics paying periodical visits to such a museum, and pointing out to their fellow-workmen the share they took in such and such a work, and how they had heard that some one somewhere else had greatly improved upon it, and moreover, that they were anxiously looking out to see it in the museum. Such a repertory of inventions, as we have suggested, would become a seed-plot for a more prolific production, as inventors need not then work in the dark, isolated and ignorant of what each other was racking his brains about, but would be mutually assisting and stimulating the respective genius of their minds.

Thanks to a noble lord*, whose legislative exertions to place the inventor upon a fair and equitable footing is worthy of all praise, we shall soon see the statute book purged of the deformity against which we have so often contended.

While these sheets are passing through the press, the Report of the Lords on the Patent Laws has appeared. The evidence contains a mass of facts which may serve as data upon which to ground future legislative endeavours to set this complicated question at rest. It is clear from the conflicting evidence given that the question of the Patent Law is not yet ripe for final decision; and we agree with the *Examiner*† that we must take "the Amendment Act now passing as a temporary measure, which removes a great wrong and takes a large step in a right direction."

We shall note down, as briefly as possible, the different opinions

* Earl Granville, whose speeches on the Patent Laws are replete with the practical views of the question.

† Vide *Examiner*, Aug. 2, 1851. In a short, but pithy article, on the "Patent Laws."

of the several eminent and practical authorities who were examined before the Committee, as they afford an amusing and instructive example of the opposite conclusions to which the mind sometimes arrives from the same premises :—

THE ABOLITIONISTS.

Mr. John Fairrie : Q. 924. Do not you think, from your experience, that the improvements which are going on in your own processes, are affected more by a continual series of small steps than by occasional great advances ?—Undoubtedly.

925. Do not you think that if all those small steps were clothed with patent rights, the effect would be rather to obstruct that continuous daily course of improvement than to forward it ?—I think so.

926. Do you think the evil likely to arise, and which within your experience has arisen, in that form is sufficient to overbalance the good to be obtained from granting patent rights to great and valuable inventions ?—*I think it is in a very great measure.*

927. Then, according to your opinion, patents are injurious altogether ?—My opinion is rather on that side than the other.

933. In a general way, do you think it difficult to define what is or what ought to be considered a discovery ?—In a great many cases it is very difficult indeed.

934. In most cases is it not the application in a new manner of discoveries previously made ?—It is ; I can give you an illustration of that. People took out a patent for a machine called the centrifugal machine, for drying cloth ; a gentleman in Liverpool said this would be applicable to sugar-refining ; he went and took out a patent for that, though he had made no discovery, simply because the idea occurred to him, and without ever having tried it ; *and so had the means of excluding all the world from using it*, though it was not his own invention at all.

935. Do you think that a person should be equally protected by a patent who merely applies already made discoveries in a novel way, and is not himself the discoverer of the original principle ?—Certainly not ; I think the cases quite distinct.

940. It has been stated to the Committee that patents operate as a great encouragement to inventors and to invention ; is not it your opinion that in the event of there being no patent to protect an inventor, he might still count, in most cases of useful inventions, upon remuneration for the communication of his improvements to the trade ?—I think so, to a very large extent, if the invention is important.

949. Do you think that the want of power to take out patents in your case, in consequence of the cost of them, has in any degree tended to check the application of your ingenuity to the discovery of further improvements?—Not in the least.

950. All patents involve the principle of monopoly?—Yes, and on that account the inclination of my mind is that it would be better to have no patents at all; the progress of improvement, I believe, would be as rapid, if it were not obstructed at every turn by patents.

Mr. Macfie, another large sugar refiner, gives similar evidence, and for precisely the same reasons.

Mr. William Cubitt: 1517. Will you state generally your objections to the present system?—The objections to the present system are, the advanced state of scientific and practical knowledge, which renders it difficult to secure anything. The principles being very well known, and very well understood, inventions involving exactly the same principle, and to effect the same object, may be practically and apparently so different, that patents may be taken out for what is only a difference in form, intended to produce the same effect, without there being any difference in principle.

1547. You think the patent laws are an artificial contrivance for the purpose of stimulating inventions, more applicable to the early stages of mechanical invention than to the more advanced development of it?—Yes; upon the whole, I think they do rather more harm than good; if they were altogether done away with, I think nobody would suffer, but many persons would gain. . . . In the present state of intercourse between nations, I think there is less need of patents than there ever was, and greater difficulty in supporting them; it is more difficult to be original; that is the principle of the thing.

Mr. J. K. Brunel: 1773. Can you state generally what is the result of your experience?—One result has been, that I have neither taken out a patent myself nor ever thought of taking one, nor, I hope, ever shall take one; and certainly, from the experience I have had, and all that I have seen of the operation of patents, I believe them to be productive of almost unmixed evil with respect to every party connected with them, whether those for the benefit of whom they are apparently made, or the public.

1774. Does not the present law encourage inventions to be made?—I believe that it practically discourages them, for that, while it appears to offer protection, and ultimate gain, to parties who are inventors, it leads to a considerably smaller number of inventions than would otherwise be brought out for the benefit of the public;

and I believe that, practically, it involves great loss upon the class of inventors as a body—a loss which I think they would not sustain if there were no patents, nor no exclusive privileges at all granted to them.

1835. The result of your evidence is, that you are very decidedly of opinion that the whole patent system should be abolished?—Yes, I think it would be an immense benefit to the country, and a great benefit to that unfortunate class of men whom we call inventors, who are at present ruined, and their families ruined, and who are, I believe, a great injury to society.

Mr. J. L. Prevost, Consul-General for Switzerland: 2104. From your knowledge of Geneva, do you think there would be any risk in abolishing the patent law altogether, leaving this country in the same position as the canton of Geneva?—As a matter of opinion, I think that abolishing the patent laws would be the best course.

Lieut.-Col. Reid: 2289. Do not you think that the principal mechanical improvements now being made, in the present state of mechanical invention, consist rather in minute details than in large new inventions?—I believe that is the case; a great number of men, particularly power mechanics, occupy themselves over what they conceive to be new inventions, which have been tried many times before; they lose their time upon them in the hope of coming to great gain. At present the hope of a patent gives them a false stimulus, and excites them to spend their time in seeking to make inventions, but I do not think the country benefits by it. I think that by throwing the whole free, the general result to the country would be benefit rather than otherwise.

Mr. John Horatio Lloyd, the barrister, arrives at the conclusion, from his practical experience, somewhat unwillingly, that “the patent laws are objectionable in principle, practically useless, and even injurious.” The reason assigned for these objections to the law altogether are, that he looks upon it as a system of bounty, by which attention and ingenuity are artificially directed to subjects of invention, and thinks that that direction of the human intellect to those subjects is, in the present advanced state of mental activity, unnecessary, and is found practically, in many cases, pernicious to the parties concerned as well as to the public. “I find,” says this intelligent witness, “that for one inventor, or supposed inventor, who succeeds, there are fifty, or perhaps one hundred, who fail; and although the history of invention may be a record of progress and of triumph, I suspect the biography of inventors would be a very tragic story indeed. My experience, and I have had a pretty large acquaintance

with inventors as a class, leads me to the conclusion that this incitement operates injuriously upon them; it is like seeking a prize in a lottery: the man is continually putting down his stake in the hope of getting a prize, and, of course, in ninety-nine cases out of a hundred, he gets a blank."

The following answer is highly significant, and must have a weighty effect upon the wavering mind:—

2700. How do you imagine an inventor would obtain a reward for his ingenuity, and a compensation for the loss of time he has incurred, if he did not obtain the monopoly which is supposed to reward him in a pecuniary sense?—I think there are many considerations which must enter into the question. In the first place, the class of meritorious inventors is a much narrower one than people suppose. Of the few whom I have ever known who were really meritorious inventors, I do not think I have known one who has derived material benefit merely from the monopoly given to him by the patent. They have derived benefit, but they have got it in other ways, quite independently of letters patent. In this country, and in this state of society in which we are now (I am not speaking of an early state of society, where it may be necessary to stimulate and encourage, but of an advanced state, like the present), there is no kind of talent, practically useful, which does not command its market value. I know practically, that persons who have the inventive faculty do turn it to good account; that they do, without letters patent, receive sufficient encouragement from those whose interest it is to reward and encourage them. Of the larger establishments in the manufacturing districts of Lancashire, there is scarcely one in which mechanics, known to be of inventive talent, are not regularly kept; these men are continually observing and continually suggesting; they are valuable to their employers, and they are remunerated accordingly. If you take a man out of that category, and propose to encourage him by giving him a monopoly for every improvement which he may strike out, in the first place, you prevent his mind from following the bent and direction which it has received; you stop him suddenly; you fix and stereotype him in an idea; and thus you not only deprive the public of the advantage which it would have from his following out that train of thought, and working upon it till he brought it to perfection, but you injure the man himself; you divert him from that which is his legitimate occupation, and the legitimate exercise of his faculty, and you set him dreaming about making a fortune. I speak, of course, with diffidence; but, so far as my observation goes, there is no man

who has a practical talent that will not find his reward for it. It is not monopolies which make Watts, and Stephenson's, and Brunels; and, to come down lower, it is not by letters patent that you can best reward the humble mechanic who makes and communicates valuable improvements.

The following is equally pertinent to the question of abolition of patents:—"There is a little misunderstanding in the public mind generally as to what an invention is. An invention I take to be a different thing from a discovery; it is, for the most part, the application of some known law, or some principle, to a new subject, so as to produce a novel result. Take Appold's centrifugal pump, for example: there is nothing whatever novel in the principle; the centrifugal force is a thing practically known to every boy who has hurled a stone from a sling; it is the application of that law to the lifting of water in which the novelty consists. Now, this is a good illustration of what I consider the irremediable defects of the patent system. Suppose Appold had thought fit to patent that invention, what could he have patented? Not the principle—not only because such a patent would not be good in law, but because it is clear that you could not make a principle the subject of a monopoly; not the result produced, for that is not a manufacture: he could only patent Appold's pump—that is to say, a particular machine by which, in a particular mode, water is lifted up. That is a meritorious invention, no doubt, because the idea of applying the centrifugal force to driving water into a confined reservoir, and so up a vertical pipe till it reaches a certain level, is a very pretty and novel idea; but, if he came to patent it, he would be attacked on all sides, and the more useful and valuable the invention, the more it would be attacked, and the more infringed; and how could he protect himself? There is scarcely a part of that machine, if there be any part, which is not perfectly well known and familiar; even the idea itself is not novel; the fan-blower to a furnace is the same thing, the only difference being that there it is air which is collected at the centre, and forced out at the circumference of the wheel, instead of water. The common rotatory bellows is the same thing; therefore he could not protect that. The steam-engine, or wheel turned by hand, which gives the rotatory motion, and so generates the centrifugal force, clearly could not be patented. The forcing of power by pressure, or a power of any sort, up a tube to a higher elevation, is not a matter that could be patented; it is perfectly well known. So that, if you take the invention to pieces and analyse it, there is scarcely a thing in it which is novel. I doubt whether even

the combination itself could be made the subject of a patent; yet here is clearly a meritorious invention. Now, supposing the inventor had been a poor man, and had desired to protect his invention, see what he would have been subject to: first he must have gone to the capitalist for means to construct the machine and bring it before the public; he must have incurred a considerable outlay in order to obtain the patent; that is the first outlay, and by no means a trifling one. But when speaking of amending the patent laws by reducing the cost, people forget that there is a vast deal beyond that which the inventor has to contend with before he can secure to himself the exclusive privilege.

PROTECTIONISTS OF PATENTS.

Mr. T. Webster: 61. Is it not fair to consider that those inventions would, in all probability, have been made without any reference to the direct pecuniary reward which the patent affords?—That may be the case with a large number of them (small improvements), but the hope of a pecuniary reward is a stimulus. And the question occurs, is it just, when a man has brought out such an invention, that he should not have some reward? I have no doubt that a great number of inventions would not be introduced but for the hope of rewards. The certainty of reward induces people to take to invention as a business. A workman knows that if he effects an improvement of a machine, if he has a liberal master, he will get well rewarded for it, and therefore, in those cases, improvements might be made; but in the majority of cases the inventor would be in uncertainty, and he would know that, while the reward he would get might be exceedingly inadequate, the advantage his master would get would be very great, and he would leave things to their course. . . . Exceptions occur; but a workman has not generally the means of making terms with his master, as to inventions; he has no protection without a patent, and a communication of the invention may defeat the right of a patent.

Mr. Wm. Carpmael: 150. You state that you think that a patent ought not to be made too cheap or too easily obtainable; are you of opinion that the present patent law might be safely repealed altogether, and inventions deprived of all privilege and protection?—I can only say that I can see no inducement to an inventor to come forward to benefit the manufacturers of this country, unless you give him some reward. Looking through the history of the whole of the manufactures of this country, you will find that all the steps have been founded upon patents, from the earliest date up to the present time; take any one branch, whether it be the cotton manufacture,

the steam-engine, the manufacture of flax, or wool,—in the case of every one, if we trace the history of it through, it will be seen that the whole system is built upon patents.

204. Can you, without difficulty, point out a certain number of very important inventions, which were preceded by such costly experiments that they could not have been carried out without the patent law?—Watt, in the case of the steam-engine, was seven years before he got the first engine to work efficiently. In the case of Arkwright's machine for spinning cotton, he was several years before he got it efficiently to work. In the case of Crompton, the same; in the case of Hargreaves, the same. Then, in regard to combing wool by machinery, and the first power-loom by Cartwright, he did not succeed in getting it practically to work for many years, and he was rewarded by Parliament for what he had done, because he had not been remunerated in the working of his patent. The paper-machine was worked out by a series of costly experiments which never would have been entered on but for the patent laws of this country.

205. Can you give the committee any idea of the cost which was incurred before Boulton and Watt's invention was brought successfully into practice?—I believe, in the case of Boulton and Watt's engine, at least from 10 to £20,000 was expended before anything like a large practical result was brought about. I have known, in the case of many inventions, hundreds, and in other cases, thousands of pounds to be spent before any practical operation took place. In the case of the printing machinery there is a striking instance of it. Cowper and Applegath's printing machinery succeeded Koenig's, and they expended a large sum of money before they attained partial success. Cowper and Applegath joined together; they were joint inventors of the most important machine which ever existed up to the last, which is the *Times* machinery, invented by Mr. Applegath. They had spent a large sum of money, I think some thousands, in bringing the machine to bear. They met positively to break up the machinery, in consequence of the want of success. They could not get good inking; whenever there was an insufficiency of ink, there was a repetition of a light line upon every page. They met with the view of destroying the whole of that machinery, when a happy thought struck one of the inventors—I think it was Mr. Cowper, but I am not quite sure,* and he suggested, that if they would allow him a little time,

* Vide chapter on typography, &c., in which we have described the progressive stages of the printing-machine in question. It was a pressman, and not Mr. Cowper, who obviated the difficulty.

he thought he should be able to remedy the defect. It was remedied, and the consequence was that it became a most efficient machine. Had there been no patent laws, I am perfectly certain that that machinery never would have existed. When the *Times* paper came out, and they announced that they were then actually printing 4000 an hour from a surface type, by one of these machines, they made as much of that number in those days as they have since made of printing double that number by Mr. Applegath's present machine. I unhesitatingly say that Mr. Applegath's machine never would have existed but for the protection, and the hope of reward, which is the result of the patent law.

Mr. Paul Rupsey Hodge: 518. Have you ever heard any complaints made of the number of patents existing in America?—Never; the patents there are very numerous, but they are generally for useful inventions. My reason for recommending cheap patents is my experience in that country; the real inventors are generally operatives, practical men. I can cite an instance of a spinning-machine which has been bought for £6000, which was invented by a journeyman who worked under me for ten years. We used to laugh at this man's assertion that he would make a better spinning-machine than Mr. Danforth's, with whom he served his time; and this improved machine is now in the Exhibition. My experience in America goes to prove that practical men, and operatives themselves, if they are encouraged, are the very men to invent, and not the employers.

522. You think the most valuable inventions are made by persons who discover them in the exercise of their own employment?—Yes.

523. Do you think that patent protection is necessary to create an inventive tendency in labours?—Decidedly.

524. You think they will not invent if they have not the prospect of patent protection?—You must give them some stimulus, and that is derived from the monopoly which the patent creates.

525. Have not the workmen been frequently the inventors of improvements in the manufactures of this country?—Very often we find it to be the case; but, though the workman has been the inventor, the employer is the only one benefited by it. Sometimes the workman meets with a liberal employer; I can cite an instance of Messrs. Sharp, of Manchester, who gave Mr. Hill, at the head of their loom department, £2000 or £3000, for an improvement in a carpet loom. This Mr. Hill found a liberal employer, and he was liberally paid, but it is not the case generally.

542. Is it not a fact that that which we perceive at recurring

periods to be a great improvement in the great processes of this country, is an improvement effected not so much by any separate, distinct, and great steps of improvement, as it is by a continuous application and new modification of improvements, each very minute and inconsiderable in itself, but in the aggregate producing an important result?—Most of the great improvements in our country arose from small matters, the whole together making a great whole; particularly in the production of our fabrics; it is very rarely that we find any large or great improvement at once. The present spinning machinery which we now use, is supposed to be a compound of about 800 inventions. The present carding machinery is a compound of about sixty patents.

543. Was not the card the result of one invention of Mr. Dyer?—The card originally was invented by an American, and patented by Mr. Dyer; but we have had many improvements upon the machine. In the case of the card, likewise, a little addition has recently come out by an American, a Mr. Calvert, who used to be a journeyman in the establishment which I superintended in the United States. He has recently brought out an invention which does away altogether with the card, leather, and wire; he inserts the carding-wire with its teeth into a cast-iron cylinder; that invention secures truth, permanence, and sharpness, and lays the fibre with greater evenness and uniformity.

544. Is that the machine which is now at work in the Exhibition?—There is one of those machines in the Exhibition. I think that the application of his idea to the ginning of cotton will do a vast deal of good in India. The present cotton-gin, what is termed the saw-gin, is not so effective as the machine of Mr. Calvert; he came here with the invention, and has sold it for between £8000 and £9000. The first year he was here he gained little or nothing at all. This is another instance showing that the best and most valuable inventions do emanate from practical men, and this does not produce any bad effects in our manufactures; it does not throw aside the old cards, but it only requires the manufacturer to take out the old carding cylinders and put in the new ones.

545. In your opinion, would the improvements, which you say have been the subjects of eight hundred patents, have been discovered without the stimulus of the patent laws?—No.

546. If as many as eight hundred small inventions combine to produce that which we may call one great machine, do you think it desirable that there should be a patent for every one of those small

suggestions?—Decidedly; I will give you another instance of it: there is an invention now brought to this country from America, which hangs up in the American department of the Exhibition; it is a flyer for an ordinary throstle-frame; the present flyer being made of solid steel, having a great deal of spring with it, the law of centrifugal force, by driving it at a great velocity, expands the flyer; but this inventor has made the steel flyer a hollow tube of less weight, and not so liable to spring, hence he is able to increase the velocity nearly one-third; every spindle does, therefore, one-third more work. In one mill at Manchester, that of Messrs. Burley, they have seventy thousand spindles, so that if you add one-third to the work they do, it will be seen to be of great national importance; every spindle is producing so many yards per minute; multiply that by the number of spindles in the mill, and add one-third to that, and the advantage obtained by the invention will be evident.

The following question and answer will be read with somewhat painful interest. The typefounders, like many other monopolists who have gone before them, are simply making a rod for their own backs. The Spittalfields-Book drove the weaving into the country; the scheme of the type-monopolists will end in the same result, if it be pertinaciously maintained.

593. Is there any advantage in the present system of requiring three patents to be taken out for England, Ireland, and Scotland?—No advantage at all; but, on the contrary, very great disadvantage; I can give you an instance of that. The machine for making type was imported from the United States; it was patented in England; the cost of the patent was very considerable; it cost a large sum of money to get the machines here, and to make experiments. But there is a peculiar monopoly among the typefounders of London, who not only keep the price of type up at a very high rate, but prevent any improvements in the making of type. They offered a certain sum of money for this invention here; the parties, thinking they could get more, and not knowing the peculiar monopoly which existed, refused it. The typefounders then had a meeting, and said, "We will not buy your machine at all." The machine, therefore, is locked up to this hour; I have it in my possession; but the machine is worked in Glasgow, without a Scotch patent, and the types are sent to this country: and so, again, in Ireland, they are just commencing the manufacture of type there.

Mr. R. A. Macfie: 1007. Do not you think the patent laws offer an incentive to discoveries and to inventions?—I think they must do

so in certain cases, so far as pecuniary inducements operate upon the minds of clever men they have that inducement, to a considerable extent, under the present law.

Mr. A. V. Newton: 1049. Having once made the invention, and having disclosed the invention to the public in England, is not all the advantage required by the public already obtained?—I will instance a case where it will be seen that it required the intervention of a party who should have a considerable interest in the invention to make it of use at all. There is a machine well known in the United States as the Excavator; it has been nicknamed in this country the Yankee Geologist; that is, or has been, in operation all over the United States for the construction of railways. It has been introduced into this country; and owing to the patent right being divided among several parties, and no one being able to act exclusively as an agent for the general interest, it has been so mismanaged, that it has been found impossible, by a most persevering gentleman, who is pecuniarily interested in the invention, to carry it into use.

1052. Will you state more in detail what are the difficulties which have prevented the copartners from introducing that invention successfully into this country?—There was no one party who had a sufficient interest in it to make it worth his while to push it well; there was no question about the value of the invention. I think that all inventions which are of great interest like that, and all complicated machines and elaborate processes, would never get here at all, unless they were introduced by a party who should have either the sole right to them, or have a large interest in them. I have seen the Excavator operating upon the Eastern Counties Railway, and I believe it has been employed by Mr. Brassey.

We saw this machine at work on the Orleans and Tours Railway in 1844. The English *navvies* employed in the construction of the line were as much opposed to the machine as the French workmen, and both combined to prevent its working. Our countrymen dubbed it the *Starvator*. At one time the *emeute* assumed a very serious aspect, so much so, indeed, that the authorities were compelled to call out the troops, and take the ringleaders into custody, several of whom were subsequently condemned to different periods of imprisonment. This circumstance called forth the pamphlet referred to in the Introduction, which had the desired effect amongst the better class of working men, who soon silenced the others.

The following extract from the Committee of Managers of the Annual Fair of the American Institute of New York, especially

appointed to examine and report upon the Excavator, will give an idea of its practical power :—

“The Excavator has been employed during the last three years upon the Western Railroad, and has saved a great deal of expense. It will do the work of 150 men. It was timed, and cut 900 yards per day of earth, which is equal to the work of 150 men. It fills its cars with the greatest ease. The cost of the machine, with the men attending it, amounted to 13 dollars 50 cents per day ; but, to cover all contingencies, we give it at 20 dollars, which shows a saving of 130 men. The steam-engine is 14 horse power, and is easily managed by two men. It works well in clay, sand, gravel, and soils, and with perfect facility. Your committee found the machine at work, and not set up for exhibition. It pierced the hill about 60 yards, with a perpendicular bank of gravel, sand, and boulders, 25 feet high. The great value of the machine will be the digging of canals, levelling grounds for railroads, cleaning docks, slips, and mouths of rivers.” The machine, certainly, at work, appeared to have the power of a giant with the docility of an infant, and could lift a stone of several tons weight, as easily as though it were only a few pounds. The Americans, however, had properly appreciated its peculiar power, it was simply effective in clearing away, but had little effect where any obstruction presented itself, which required the manual labour of the pickaxe and the spade.

Mr. William Fairbairn: 1138. Is there not also a desire to increase the working or productive power of your machinery ?—Yes ; but I believe what is a much more powerful stimulus is, the interest arising from having the benefit of these inventions which subsequently become advantageous to the public.

Mr. R. Roberts : 1277, Do you think invention has been stimulated by the patent laws ?—It has been stimulated, I have no doubt, but do not know to what extent. A man expecting to gain something handsome from his invention, would exert himself more than he would otherwise do.

Mr. M. D. Hill : 1989. You think doing away altogether with patents would be injurious to the country ?—Yes, injurious in this way and to this extent ; I think it very probable that almost every invention which is made with the stimulus of patents would be made without that stimulus eventually ; but I think the patent law gives this advantage to the country, that it anticipates what I might call the natural period of an invention, so that you have for the benefit of the public an invention some ten or twenty years, or perhaps, in some cases, fifty years before you would have it without the stimulus of a patent.

Similar evidence is given in favour of rewarding invention, through the medium of a patent law, by Messrs. Cubitt, Woodcroft, Cole, Mercer, Rendal, Westhead, and May.

After reading attentively the evidence in the report, we certainly cannot make up our minds to sweep away all protection from the patentee, as we consider the weight of argument is about equal on both sides of the question. We have endeavoured to state the question fairly, and have placed the *pros* and *cons* before the reader, so that he may be enabled to judge for himself. The *Examiner* has put the question in such a clear light, and with its usual terseness, that we cannot do better than close with its remarks, merely premising that they were written while the amended law was under discussion, and not under the impression that it would be thrown out by the legislature :—

“There is a social problem involved in a discussion of the patent laws which must be argued out hereafter. For the present we believe all parties are agreed that the passing of the Patent Law Amendment Act is a deed not to be long postponed. The social question is whether an adapter or inventor of machinery or other articles be really benefited by a patent law ; and, if the law be beneficial, then arises the next problem of the *quale* and the *quantum*, what sort of protection, and how much of it, consists with the respective rights of the inventor and of the community.” After citing the opinions of Mr. Cubitt, Mr. Brunel, and Lord Granville, the active and able promoter of the present measure, all of whom are for withholding protection, it continues :—“We are not, for our own parts, disposed yet to adopt this extreme opinion. The patentee, in return for his protection, specifies minutely to the public all the secrets of his art, which become public property after the expiration of the term of his privilege. Were patent laws abolished many branches of trade might lapse into their old forms of arts and mysteries ; and to a certain extent this would be an evil. We think, too, that protection under patent laws, ruinous enough now, might, under improved legislation, be enlarged into a wholesome privilege, a fair reward of zeal and application. . . . An inventor under the old law has to take out separate patents for each of the three kingdoms, paying down upwards of £300 before he can enter upon the enjoyment (or misfortune) of his right. This money being paid, 99 inventors in 100 find their hopes fallacious, and regret the cash that has gone out of their pockets. Last year there were taken 520 patents for England, 221 for Scotland, and 62 for Ireland ; the proportion of patentees being,—for the English patents, 444 Englishmen, 27

Scotchmen, and 3 Irishmen ; for the Scotch patents, 173 Englishmen, 26 Scotchmen, and 5 Irishmen ; and for the Irish patents, 44 Englishmen, 6 Scotchmen, and 4 Irishmen ; or a proportion, upon the whole returns, of some 500 Englishmen to 25 Scotchmen and 4 Irishmen. Now, under the amended law, one patent will be granted for the three kingdoms, at a total cost of £175, judiciously arranged after the following manner :—The inventor specifies his patent, and enjoys protection for six months gratuitously to all intents and purposes. If he see reason to forfeit his privilege then, he may. After this his invention is examined, and, if new, he receives a patent for the first three years at a cost of £25, including the stamp. If, at the end of three years, he should find his patent satisfying expectation, he pays £50 for four years longer privilege. Having enjoyed his right for seven years, if he still find it valuable, he will be glad to pay the last instalment of £100 for the remainder of the period. Vexatious little patents in this way die out in their infancy, and only those which really prove of value are protected for a length of time, or pay a large tax to the crown.”

CURIOUS FACTS.

Mr. John Fairrie states that only two important discoveries have occurred in sugar-refining within forty years. The first was Howard's patent for boiling sugar *in vacuo*. When first tried it was a complete failure. The invention was put into the hands of a sugar-refiner, a Mr. Hodgson, who, in attempting to carry it out, was said to have spent his whole fortune. At length a German workman suggested a slight improvement, which brought the thing to perfection, and enabled the patentee to realize from £40,000 to £50,000 a-year.

The only other great improvement is the use of animal charcoal, in small grains like gunpowder, through which the sugar is filtered, which has the curious property of removing all colour from the sugar. This discovery has had the effect of reducing the price of fine sugar twenty shillings a hundred weight. “I tried it; but it never occurred to me that it should be patented, because it was only an application of a known power. To my surprise, I found I was forestalled ; that a patent had been taken out, though I had known the principle, and applied it, two years before.”

Mr. William Cubitt remarks, “that there is less room for inventions than persons imagine. There is little chance of a workman inventing things which will be very useful, which are not known at present, because they do not know what has been done. Cases frequently come under my knowledge of that kind :—one did the other

day, in which a person had an invention for which he did not take out a patent, but he made it, like a sensible man, for his own purposes, as an article of sale; the article which he made was for filtering water; he had a patent for a peculiar artificial stone, through which the water filtered, and he could make it of different degrees of fineness; he took out a patent for that, and he made a filter, in which a stone vessel, hollow, like a bomb-shell or a cylinder, with closed ends, was inclosed in a larger cylinder of iron, into which it would fit loosely, leaving a space all round; the outer cylinder was connected with the water-main, or water-pipe or cistern, and filled by it; and the water then percolated through the inner vessel, from which inner vessel a stop-cock went to the outside to draw the water—that was filtered water. Or you could reverse the operation: the foul water could be put into the inside of the stone filter, and be drawn from the outside vessel, or iron case, as filtered water. That was made and sold by him, and answered the purpose very well indeed; he sold a great many, to some advantage. Now came the operation of the patent laws upon it. Shortly after he began to supply his customers, he received notice from a house in Liverpool that he would be prosecuted; he received intimation of legal proceedings against him for interfering with his, the Liverpool man's patent. The manufacturer of these things, who had no patent, came to me to consult me upon the subject; I at once saw how the case stood, having regard to the specification of the Liverpool patentee, that he had taken out a patent for that which another man had before done, so exactly that the words of the specification and the drawings fitted the first man's invention, which was without a patent, therefore his patent would have been null and void. I advised my friend to write to the patentee, to inform him of the fact that he had taken up a case which he could not support, and that he himself was infringing upon the invention of the first man, who had no patent; that brought the Liverpool man to me, I having been referred to as having one of these filters in use. I explained to him that I had had the patent filter of the other man for two or three years. Then, what was to be done? I advised my friend to tell the Liverpool patentee, if he did not come to some arrangement of a business-like nature, he himself would have to become the prosecutor, and to sue out a *scire facias* to make him prove his patent right, which is an expensive legal proceeding, and very troublesome to a patentee. I believe they have since made some business arrangements."

Mr. John Lewis Prevost, Consul-General for Switzerland, stated

that there is no law in the canton of Geneva for the protection of inventions, and, he believed, in no part of Switzerland. The process of manufacturing soda-water was invented at Geneva by Mr. Paul. Switzerland labours under many disadvantages as an exporting country; being a mountainous country, her means of communication are difficult, and she is about 4000 feet above the level of the sea. In addition, her water communication is very incomplete, as she is 1000 miles distant from the sea. In 1840, Professor de la Rêve published his invention of gilding by galvanism. He took no patent out anywhere. Later, Professor Schönbein, of Basle, invented gun-cotton, and took out a patent.

Mr. Lloyd remarks:—"There will always be persons who will invent; and an inventor will always communicate his inventions. It is a necessity of his nature that he should do so; and, even if he did not, inasmuch as invention is not a creation but a growth, and gradual development, there will always be found some other mind, about the same time, which will have hit upon the same idea, and the public will not be long deprived of the benefit. You rather check the disposition to communicate than encourage it by a patent."

Such is the continuous improvement, we believe, which takes place in machinery, that it becomes more economical and advantageous to substitute new machinery every seven years than to continue the old machinery. Mr. Webster states that a large proportion of these improvements are patented; and that, if the history of the important trades of this country were carefully examined, it would be found they had been built upon a multiplied system of patents. In support of this view of the question he states:—"We had, for instance, a litigation only the other day at Liverpool for an improvement in looms; the invention consisting in an improved means of stopping the loom, whereby they could drive the loom from 1 to 120 picks a minute, instead of 60 or 80 picks. That might appear a trifling thing in itself, but I know it made a great change to many establishments. Another instance of a patent being litigated, where the improvement consisted in giving a sort of eccentric motion to the can in which the cotton sliver was received or laid on leaving the drawing-rollers, whereby no two slivers were laid parallel one with the other, but each of them was laid at a very small angle—an infinitesimally small angle—with the other, so that you have every sliver laid in an eccentric coil, and, there being no parallelism between them, they come off from each other without difficulty. A prior invention does not interfere with a subsequent invention. In the

case of the loom, the inventor had been at work at it for years ; it was a great desideratum. The stopping the loom instanter when the shuttle traps, or is stopped in its course, or when the weft thread breaks, had been the subject of many patents ; but this man, by a very simple contrivance, accomplished the purpose perfectly. The shuttle passes through with the weft ; if it happens to stop in its course, and the sley comes against it, there is a danger of destroying the fabric already woven. Therefore it became essential that some means should be devised of stopping the progress of the loom when the shuttle stops in its course. This man conceived the idea of transferring the momentum of the sley to the break on the fly-wheel, and the stoppage was instantaneous. The result was, that the manufacturer paid him five shillings a loom for it ; but he had some difficulty in establishing his claim.

The number of inventions brought out by purely scientific people I believe to be very few, and for this reason ; purely scientific people want practical knowledge to enable them to carry out their ideas ; the mass of inventions are made by workmen, or persons of skill and science engaged in some actual manufacture. Perhaps the best illustration of that would be to take the screw propeller ; that is a distinct thing from an established trade ; each of the persons who embarked in that was in advance of the age, so to speak ; he had to do something, the like of which had not been done before. That species of invention must necessarily fall into the hands of scientific men. Watt's first patent bears date 1775. The majority of improvements made in the steam-engine have been made by workmen, that is, persons engaged in the actual working of them. In an established manufacture, improvement must consist in small details ; the workman is better educated as to, or has more experience of, the wants of the machine than any other person.

There were ninety patents taken out in 1850 for improvements in the cotton manufacture. Practically small changes lead sometimes to large results. The original steam-engine of Newcomen, in which the piston worked up and down in the cylinder, and the vacuum was obtained by condensing the steam in the cylinder, was improved by Watt by simply causing the vacuity to be obtained in a vessel extra the one in which the piston worked, which was a large change in the result, but practically small in the quantity of the machinery.

Duration of Patents.—There have been cases in which the practical monopoly of an invention has existed for the term of twenty-eight years. Bolton and Watt's was granted for thirty years. In

two instances of recent times the same period was granted. Lord Dundonald's patent, and the blind gentleman (Mr. Mitchell), who invented the system of pile-driving on which the lighthouses are now constructed on sands, was the other.

Mr. R. Hodge remarks, that if you take a man from Leeds, where they are making flax and woollen machinery, and put him into a cotton-mill, he will know little or nothing about it. There are many little niceties connected with inventions which are all-important. Many machines I have known to be nearly completed, and to be waiting only for some small thing; and, after waiting two or three years, the introduction of that little thing may make the whole of use. I will cite as an instance of that, Mr. Robert's loom for producing plain silk fabrics; they were for years working upon the loom, but they wanted something to give the delicate effect that the hand gives in throwing up the work. At length the introduction of a very trifling matter, as a piece of vulcanized rubber, effected what they wanted; but they were years waiting for it. Such an invention is of great importance to the manufacturers of the country. I have paid considerable attention to the silk manufacture. I have, during the last five years, spent a great deal of time in France, and I find that the plain silks of Manchester are now sent to Lyons. It is nothing but the improvement which we have made in the looms for weaving plain silks in Manchester, that gives us that advantage over the French. I say it is therefore a matter of great national importance; and, although that little addition to the loom might look trivial, we see the result of it, and feel it nationally; and I think a man is entitled to a patent for what may appear a small thing, as well as for a large one: everything depends on the result.

Pins are at present made by American machines in this country. The first solid-headed pin that was made here was made by an American machine. Five patents have been sold for pin machines in this country which have been invented in America. In my works in the United States, there were two men who hired part of the establishment, and had a room fitted up for them to make this pin-machine; it is called the Pokipsey pin-machine. They afterwards carried on their manufacture up the Hudson, at a place called Pokipsey; those were two journeymen machinists whom I knew well; they produced the first machine for making a solid-headed pin. We know the vast sums of money which have been spent in this country for producing pins.

The following is significant:—

There is a mill now exhibited at the Great Exhibition, under the name of Crosskill's mill, which is the invention of Mr. Bocaduys, of the United States. This is an eccentric mill; it is based upon a very simple principle; the bottom disk of the mill is eccentric to the top one; it is a very ingenious machine. The party who brought out that patent sold it to Sharp, Brothers, & Co., in Manchester. I think they paid £3000 for it; but, having so much business to do in other matters, the locomotive business at that time coming in fast upon them, they neglected it: the patent has run out. Now Mr. Crosskill is beginning to introduce it. I know the inventor came to this country, hoping to reap some benefit from the invention, and he found that the invention had been pirated and stolen by the father of his own apprentice; and he would not have had a shilling to take him back to America again, but that he invented the penny post-stamp, for which he received a large sum from Government.

The Kaleidoscope.—Sir D. Brewster, the inventor of this beautiful instrument, states—"that there were cart-loads of those instruments shipped for foreign countries. I dare say I might have made a couple of hundred thousand pounds by it if the patent had been protected. There were millions of them sold in London at that time.

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THE END.

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